CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

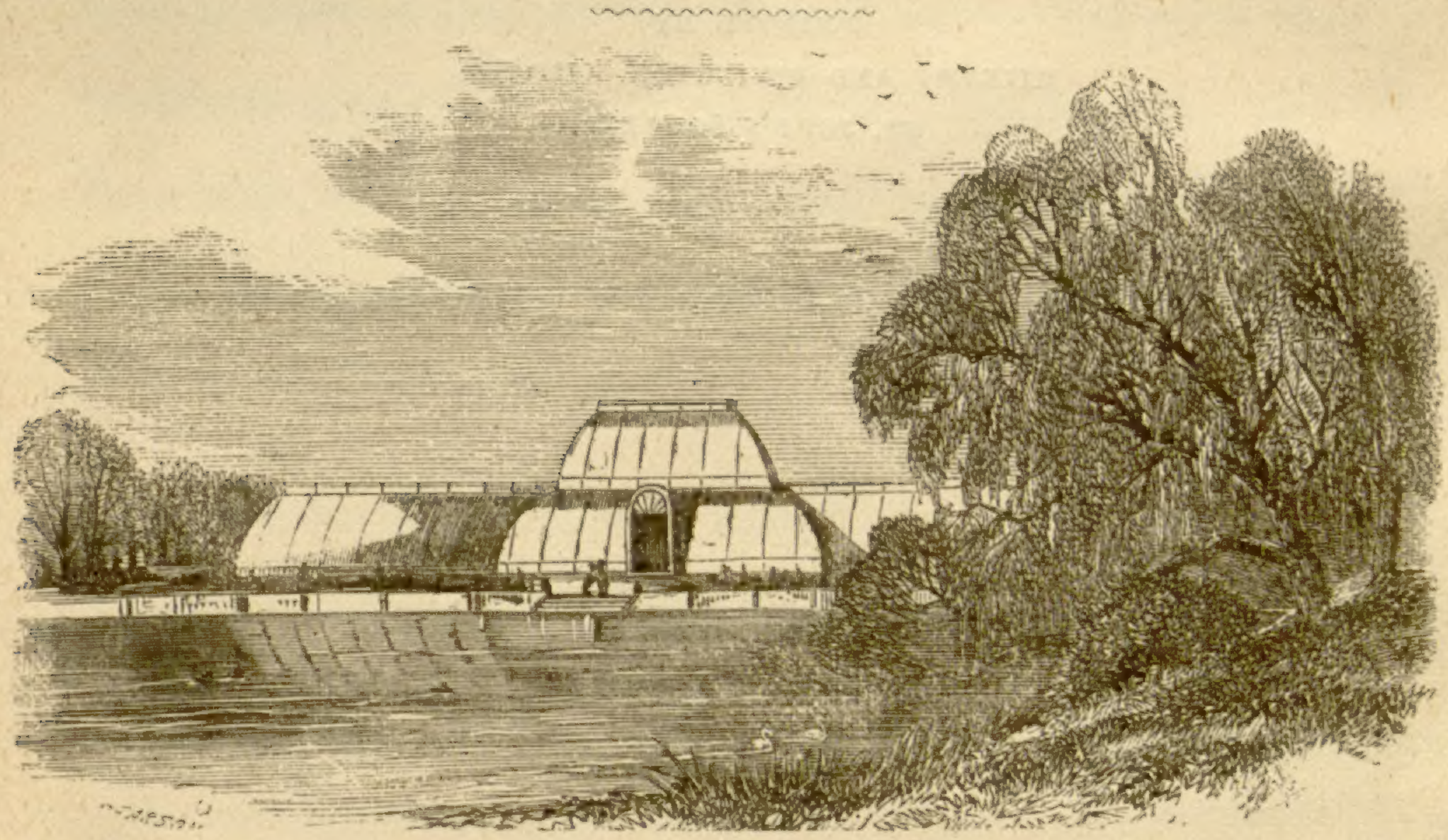
OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;

WITH SUITABLE DESCRIPTIONS;

BY

SIR JOSEPH DALTON HOOKER, M.D., C.B., K.C.S.I.,
F.R.S., F.L.S., ETC.,
D.C.L. OXON., LL.D. CANTAB., CORRESPONDENT OF THE INSTITUTE OF FRANCE.

VOL. XXXIX.
OF THE THIRD SERIES.
(Or Vol. CIX. of the Whole Work.)



"Fair pledges of a fruitful tree,
Why do ye fall so fast?
Your date is not so past,
But you may stay here yet a while
To blush and gently smile."—HERRICK.

LONDON:
L. REEVE & CO., 5, HENRIETTA STREET, COVENT GARDEN.
1883.

[*All rights reserved.*]

Mo. Bot. Garden,
1897.

PRINTED BY
GILBERT AND RIVINGTON, LIMITED,
ST. JOHN'S SQUARE.

TO

HERR MAX LEICHTLIN,

BADEN BADEN.

My dear Sir,

It gives me great pleasure to offer you the dedication of a volume of the Botanical Magazine, in recognition of your eminent services to Horticulture; and as a slight mark of that esteem which I, in common with the intelligent gardening world of Europe, entertain for your knowledge, skill, and enthusiasm, and for the liberality with which the treasures of your garden are distributed amongst your fellow-Horticulturists.

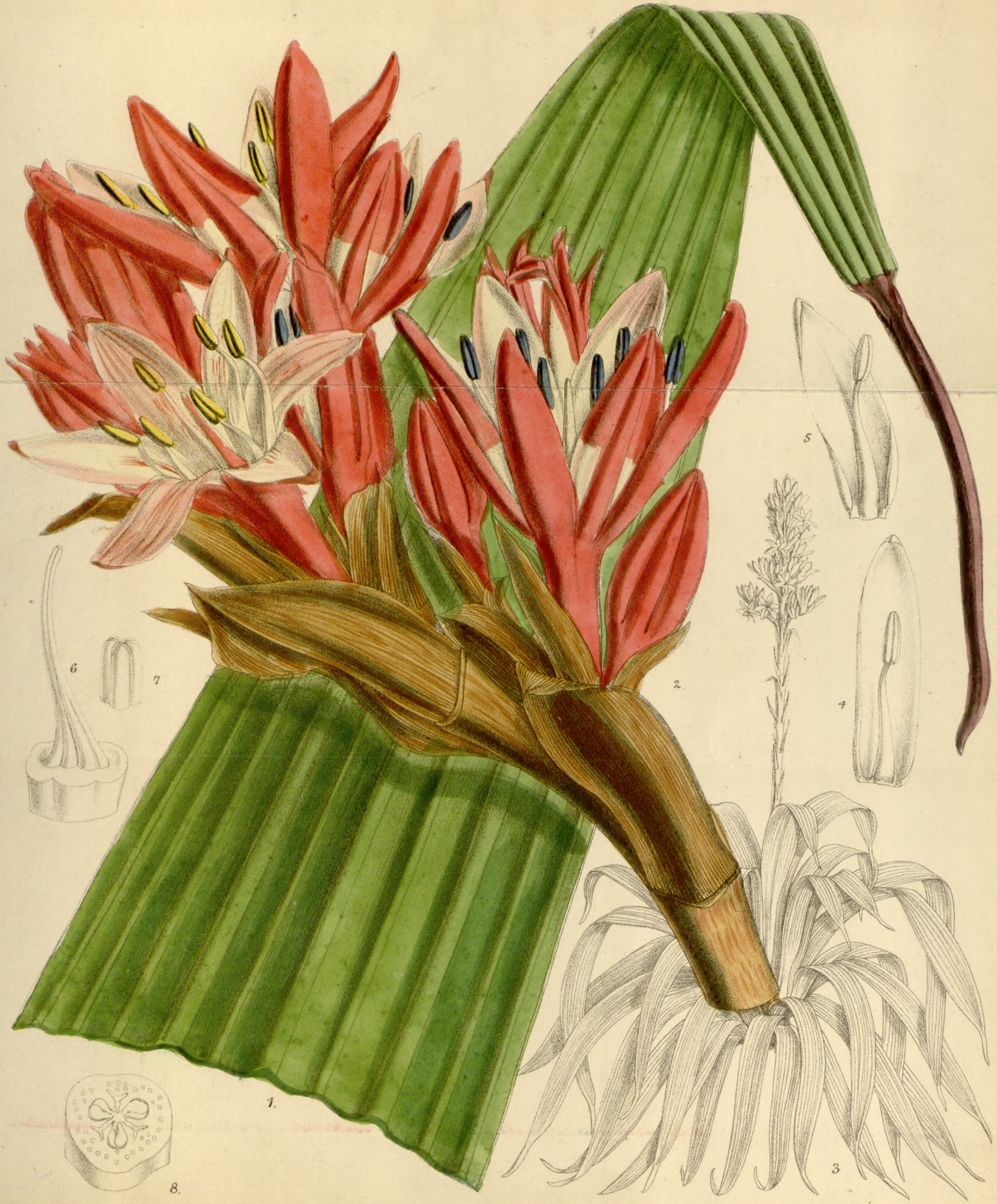
Believe me, with great regards,

Very sincerely yours,

J. D. HOOKER.

Royal Gardens, Kew,

December 1*st*, 1883.



M.S. del. J.N.Fitch lith

Vincent Brooks Day & Son Imp

Tab. 6665.

DORYANTHES Palmeri.

Native of Queensland.

Nat. Ord. Amaryllideæ.—Tribe Agaveæ.

Genus Doryanthes, *Corr.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 739, ined.)

Doryanthes *Palmeri*; foliis perplurimis patentim recurvis 5–6-pedalibus 4–6 poll. latis auguste ensiformi-lanceolatis subplicatis nervis crassis prominulis, apice in tubum sphacelatum cylindraceum 4–5-poll. abrupte angustatis, caule v. scapo stricto elato 6–10-pedali foliis parvis erectis lineari-lanceolatis instructo, inflorescentia thyrsoidea bracteata e spicis perplurimis paucifloris secus rhachim brevem crassam constante, bracteis coloratis exterioribus vaginantibus oblongis acutis interioribus lanceolatis concavis floribus brevioribus, perianthii tubo supra ovarium coloratum brevissimo, segmentis lineari-oblongis obtusis extus coccineis erecto-patentibus, interioribus dorso crasse costatis, filamentis inferne incrassatis, antheris breviter oblongis.

D. Palmeri, *W. Hill MSS.*; *Benth. Fl. Austral.* vol. vi. p. 452; *Gard. Chron.* 1874, vol. i. p. 181, *cum ic. xylog.* f. 44, 45 (icones in Fl. des Serres iteratæ et incaute coloratæ), *et* 1881, vol. i. p. 408, f. 64; *Regel Gartenfl.* 1874.

When, in the very commencement of this century, the prototype of the genus *Doryanthes* (*D. excélsa*, Plate 1685) flowered for the first time in Europe, it was regarded as one of the wonders of the vegetable kingdom; and all the more so from the singular fact that the above-mentioned flowering was that of a solitary flower "which came to perfection at Kew from a portion of stem without roots, which had been cut many months before in New Holland." This fact, overlooked by some of the later historians of the genus, is recorded by its founder, Dr. Correa de Serra, in the sixth volume of the Linnæan Society's Transactions, where the genus is well figured and described in a paper read December 2nd, 1800. Though very rarely flowering in this country, *D. excelsa* has continued in cultivation in establishments provided with space enough for so gigantic an amaryllid, along with its allies, the Fourcroyas and

Agaves ; but it was not till seventy years after its discovery that the present even more gigantic species was made known by Mr. Hill, Government Botanist of Queensland, who found it on elevated rocks between Moreton Bay and Darling Downs. From the specimens then brought, which flowered in the Queensland Botanical Gardens in 1870, and were exhibited at the Intercolonial Exhibition in Sydney, together with a drawing made by Miss Scott, the description of *D. Palmeri* by Mr. Bentham, in the "Flora Australiensis," was taken. This description, though accurate, is necessarily incomplete; it takes no notice of the ribbing of the leaf, nor of their singular tubular brown tips, the latter a character common to both species, though exaggerated in this ; nor of the fact that the ovules and seeds, though inserted in two series, are so superposed as to form one row in each cell ; in which respect the genus differs from all others of the tribe *Agaveæ* to which it belongs, and of which tribe it is the sole extra American representative.

Though, as above stated, *Doryanthes Palmeri* was not known as a distinct species till 1870, it must have been discovered a considerable time before that date, for the plant which is here figured has been in the Royal Gardens for upwards of sixteen years, under the name of *D. excelsa.*

As a species *D. Palmeri* differs from *D. excelsa* in its much larger size, broader, longer, more ribbed leaves, thyrsoid inflorescence, short and coloured bracts, and much shorter not recurved perianth-segments, which are a pale red within, and in the short anthers : it commenced flowering in the Succulent House at Kew in 1881, and was transferred thence to the South Octagon of the Temperate House, where it commenced to open its flowers in March, and continued in beauty for two months, finally ripening its seeds in October.

The name *Palmeri* records the services to Horticulture of A. H. Palmer, Esq., formerly Colonial Secretary of Queensland.

Descr. *Roots* fibrous. *Leaves* very numerous, spreading and recurved, ensiform, six to eight feet long and four to six inches broad, slightly ribbed, tip brown tubular, four to six inches long. *Stem* or scape eight to ten feet high,

clothed with lanceolate short erect bracts. *Inflorescence* three feet long, thyrsoid, compact, of many short few-flowered spikes surrounded by red-brown oblong acute bracts, the inner of which are shorter than the perianth. *Flowers* scarlet, from the tubular ovary, which is one and a half inch long, to the tips of the segments, which are erecto-patent, narrowly oblong, obtuse, and two inches long. *Stamens* shorter than the perianth-segments, filaments gradually narrowed upwards; anthers half an inch long, yellow in bud, then purple. *Style* deeply grooved, base conical; stigmas very minute, radiating.—*J. D. H.*

Fig. 1, End of leaf; 2, portion of inflorescence :—*both of natural size;* 3, *reduced* figure of whole plant; 4, outer, and 5, inner perianth-segments; 6, top of ovary and style; 7, top of style and stigma :—*all enlarged.*

M.S. del, J.N. Fitch

Vincent Brooks Day & Son Imp

TAB. 6666.

NEMASTYLIS ACUTA.

Native of the South-Western United States.

Nat. Ord. IRIDEÆ.—Tribe SISYRINCHIEÆ.

Genus NEMASTYLIS, *Nuttall;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 696, ined.)

NEMASTYLIS *acuta;* bulbo ovoideo tunicis pluribus membranaceis brunneis, foliis basalibus 2–3 elongatis linearibus plicatis glabris, caule gracili furcato, ramis 2–4 apice floriferis basi folio reducto bracteatis, spathæ bifloræ valvis 2 lanceolatis rigidulis striatis apice membranaceis, pedicellis spathâ æquilongis, ovario turbinato, limbi segmentis oblongis cæruleis patulis, staminum filamentis brevissimis, antheris erectis linearibus luteis post anthesin revolutis, styli ramis subulato-cylindricis inter antheras patulis apice stigmatosis.

N. acuta, *Herbert in Bot. Mag.* sub t. 3779; *Engelm. et A. Gray Pl. Lindheim.* part i. p. 27; *Baker in Journ. Linn. Soc.* vol. xvi. p. 103; *Van Houtte Flore des Serres,* t. 2171.
N. geminiflora, *Nuttall in Trans. Amer. Phil. Soc.* vol. v. p. 157.
IXIA acuta, *Barton Fl. North. Amer.* vol. i. p. 76.

Of this curious and little-known genus of bulbous Iridaceæ there are three closely-allied species in the Southern United States. It is remarkable for having its style divided down to the base into six branches, which spread two together between each of the three anthers at a right angle from their base, and are stigmatose only on the slender tip. The flowers are a bright azure-blue, and are very fugitive. In the present species they are, so far as I have seen, always two in a cluster, one appearing after the other has faded; but in its close ally, *N. cælestina*, they are usually solitary. It has been introduced several times into European gardens of late years. We had it from Mr. Chas. Green in 1874, from Mr. Wm. Bull in 1875, and it was figured in the "Flore des Serres" in 1875, from specimens sent by Max Leichtlin of Baden Baden. Our drawing was made from plants that flowered at Kew in the summer

of 1882, which came from the collection of the late G. C. Joad, Esq., of Wimbledon.

Descr. *Bulb* ovoid, about an inch in diameter, with many dark-brown membranous tunics. *Basal leaves* two or three, not distichous, sheathing the stem at the base, then produced into a linear plicate glabrous lamina half a foot or a foot long, of moderately firm texture. *Stem* slender, terete, a foot or more long, with two, three, or four ascending branches, each ending in a spathe and bracteated at the base by a reduced leaf. *Spathe* of two lanceolate valves above an inch long, green and moderately firm in texture, membranous at the tips. *Flowers* two in a cluster, with pedicels as long as the spathe. *Ovary* small, turbinate; perianth-limb slit down to the base into six similar oblong azure-blue spreading segments about an inch long. *Stamens* three, erect, with very short filaments, the bright-yellow erect linear anthers soon curling up after the flower is expanded. Branches of the *style* spreading horizontally, not more than half as long as the anthers. *Fruit* a small coriaceous loculicidal capsule, with several subglobose seeds in each cell.—*J. G. Baker.*

Fig. 1, Stamens and styles; 2, front view of a stamen; 3, back view of a stamen; 4, style, with its six spreading forks:—*all more or less enlarged.*

Tab. 6667.

BABIANA ringens.

Native of the Cape of Good Hope.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Babiana, *Ker;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 706, ined.)

Babiana *ringens;* bulbo globoso tunicis pluribus membranaceis brunneis, foliis basalibus 6–8 caulis basin longe amplectentibus linearibus plicatis glabris rigidulis, caule piloso pedali vel sesquipedali medio rami brevi arcuato florifero et sub apicem altero abortivo prædito, floribus densis secundis spicatis erectis, spathæ valvis 2 magnis lanceolatis rigidulis crebre striatis apice sphacelatis, perianthii tubo infundibulari viridulo, limbo bilabiato splendide rubro, labio superiori oblongo integro longe unguiculato, labio inferiori segmentis 5, centralibus oblongis unguiculatis, lateralibus minoribus lanceolatis reflexis, genitalibus exsertis.

Antholyza ringens, *Linn. Sp. Plant.* vol. i. p. 54; *Miller Gard. Dict.* edit. 8, No. 1; *Thunb. Fl. Capen. edit. Schultz,* p. 39, non *Andrews.*

Babiana ringens, *Ker in Konig et Sims Ann.* vol. i. p. 223; *Gen. Irid.* p. 152; *Lodd. Bot. Cab.* t. 1006; *Herbert in Bot. Reg.* 1838, Misc. p. 18; *Klatt in Linnæa,* vol. xxxii. p. 732; *Baker in Journ. Linn. Soc.* vol. xvi. p. 166.

This is one of the most curious and striking of all the Cape bulbs, and it is interesting historically as being one of the first Cape plants known to botanists. It was introduced by the Dutch in the seventeenth century, and excellently figured and described by Commelinus in 1697 in his "Hortus Medicus Amstelodamensis" (vol. i., p. 81, tab. 41) under the name of "Gladiolo æthiopico similis planta angustifolia, caule hirsuto, flore rubicundissimo," by *Gladiolus æthiopicus* what we now call *Antholyza æthiopica* being intended. It has never been grown in England except casually as a curiosity, and whenever introduced appears to have been soon lost. Philip Miller had it at Chelsea in 1759, Loddiges at Hackney from 1820 to 1825, and in 1838 it ripened its seeds with Dean Herbert at Spofforth in Yorkshire in the open air, standing out of doors in a pot of sandy loam, after having been kept during the winter in a greenhouse. Of late years we have had

living specimens sent from Mr. Barr in 1878, and Sir Chas. Strickland in 1879. Our drawing was made from a plant that flowered at Kew in the summer of last year, received from Mr. Harman.

Descr. *Bulb* globose, about an inch in diameter, with numerous brown membranous tunics. *Leaves* six or eight in a distichous basal rosette, sheathing tightly the lower part of the stem for several inches, produced above the sheath into an erect linear plicate glabrous lamina of firm texture. *Stem* pilose, a foot or a foot and a half long, with a short arcuate branch bearing a dense secund spike of flowers below its middle, and another or sometimes two near the top, represented only by small bracts. *Spathe* about an inch and a half long, clasping tightly the perianth-tube, composed of two lanceolate valves of firm texture, the outer one both broader and longer than the inner. *Perianth* with a green funnel-shaped tube as long as or a little longer than the spathe; limb bright crimson, bilabiate, the upper lip oblong, acute, with a long claw with incurved edges, the lower lip shorter, with five segments, the three central ones standing forward, the two side ones small, lanceolate, reflexed. *Stamens* and style wrapped round by the incurved edges of the claw of the upper lip of the perianth, protruded beyond its tip; anthers linear, purplish; stigma with three falcate linear branches. *Capsule* oblong, coriaceous, with five or six turgid seeds in each cell.—*J. G. Baker.*

Fig. 1, Front view of anther; 2, back view of anther; 3, stigmas; 4, vertical section of ovary; 5, two ovules:—*all more or less enlarged.*

M.S. del J.N.Fitch, lith.

Vincent Brooks Day & Son Imp

L Reeve & Co. London

Tab. 6668.

MICROSTYLIS METALLICA.

Native of Borneo.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Microstylis, *Nutt.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 404, ined.)

Microstylis *metallica;* caule brevi folioso, foliis e basi late vaginante sulcato ellipticis acutis 3–5-nerviis plicatis totis purpureis marginibus crispato-undulatis, scapo gracili sulcato remotifloro purpureo, bracteis parvis lanceolatis reflexis, floribus longe pedicellatis, pedicellis horizontalibus ad basin ovarii breviusculi decurvis, sepalis lineari-oblongis obtusis purpureis marginibus recurvis, petalis consimilibus sed paullo longioribus angustioribus et acutis, labelli ambitu late obovato basi sagittato angulis acutis, antice rotundato eroso-dentato callis 2 minutis columnæ antepositis, columna brevi superne dilatata truncata.

M. metallica, *Reichb. f. in Gard. Chron.* 1879, vol. ii. p. 750.

The tendency in the genus *Microstylis* to assume a deep purple colour, in the foliage especially, is a curious feature of many of its species; in the Ceylon *M. discolor* (Plate 5403), which in foliage closely resembles this, the colour is confined to the leaf excepting its margin, and to the scape; whilst in the present species it pervades the whole plant with the exception of the column. The colours, however, vary in kind and intensity in the same species, being no doubt much influenced by the amount of light under which the plant is grown; thus, in the specimens of this species flowered by Mr. Bull, and described by Dr. Reichenbach, the leaves are blackish purple above and rose-coloured beneath, the scape violet, the odd sepal yellow, and the lateral ones rose-coloured on one side and yellow on the other. Prof. Reichenbach further remarks that after being plunged in boiling water and dried the leaves become green, and I find that in the racemes of flowers dried without boiling water the pedicels become pale green, and the perianth more or less yellow green. *Microstylis metallica* was communicated by Messrs. Low, of Clapton,

in May, 1880, and it flowered in the Royal Gardens in May, 1881.

Descr. A small herb five to seven inches high, for the most part of a fine vinous purple colour. *Pseudo-bulbs* very indistinct in our specimen ("cylindric," Reichb. f.). *Leaves* four to six, erecto-patent, two to three inches long by one to one and a half broad, elliptic, acute, plicate along the three to five deeply impressed nerves, margin crisply undulate; sheath broad, grooved, of the same colour as the blade. *Scape* very slender, two to three inches high, grooved. *Raceme* as long, few and distantly flowered. *Bracts* small, lanceolate, reflexed, purple. *Pedicels* one third of an inch long, slender, horizontal, decurved at the insertion of the ovary, which is slender, and one-sixth of an inch long. *Flowers* vertical, two-thirds of an inch broad across the sepals. *Sepals* straight, spreading, linear-oblong, subacute or obtuse, margins strongly recurved. *Petals* rather longer, much narrower, acute. *Lip* pale purple, shorter than the sepals, broadly obovoid in outline, flat, deeply sagittate, cleft at the base, the angles acute and sides of the cleft straight; anterior margin rounded, irregularly toothed; calli two, minute, opposite the column. *Column* very short, expanded upwards and truncate with acute angles; anthers nearly circular.—*J. D. H.*

Fig. 1, Front, and 2, back view of flower; 3, column; 4, anther case; 5, pollen: —*all enlarged.*

M.S. del, J.N. Fitch lith

Vincent Brooks Day & Son Imp

L. Reeve & Co. London.

TAB. 6669.

CEREUS CÆSPITOSUS.

Native of New Mexico and Texas.

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus CEREUS, *Haworth*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 819.)

CEREUS (Echinocereus) *cæspitosus;* caulibus ovoideis v. ovoideo-cylindraceis solitariis v. cæspitosis 12–18-costatis, areolis elevatis linearibus approximatis, junioribus albo-villosis, aculeis radialibus 20–30 subrecurvis appressis pectinatis albis nonnunquam roseis superioribus inferioribusque brevioribus lateralibus longioribus centralibus 0 v. paucis, tubo floris pulvillis 80–100 longe cinereo-villosis setas apice seu totas fuscas seu nigricantes 6–16 gerentibus stipato, sepalis interioribus 18–25 oblanceolatis integris seu denticulatis, petalis 30–40 obovato-lanceolatis obtusis acutis seu mucronatis ciliato-denticulatis, stigmate viridi infundibulari 13–18-partito, bacca viridi ovata perigonio coronata villosa setosa denum denudata, seminibus obovatis tuberculatis nigris.—*Engelm.*

C. cæspitosus, *Engelm. in Plant. Lindheim.* 202; *et in Cact. U.S. Mex. Bound. Surv.* 32, t. 43, 44; *Walp. Ann.* vol. v. p. 43.

ECHINOCEREUS cæspitosus, *Engelm. in Bot. Wisliz. Exped.* 26; *Walp. Ann.* vol. iii. p. 896.

E. pectinatus, *Hort.*

Dr. Engelmann, of St. Louis, the learned and most accurate investigator of the *Cacti* (as of many other groups of American plants), says of this species, that it extends from the Arkansas river to Saltillo, and has been found as far west as the Nueces and San Pedro, and adds that the loose darkish wool and slender bristles on the extremely numerous (eighty to one hundred) pulvilli of the flower-tube, and especially the position of these pulvilli—not in the axil, but considerably above it on the sepal, just below its foliaceous tip,—distinguish this species from the nearly allied *E. pectinatus*, and from all other *Echinocerei* known to him. And with regard to the name, *cæspitosus*, which would apply much better to a number of other species of the section *Echinocereus*, it was given before any of these were known; it not inaptly represents a common state of the plant, when it makes five to twelve heads, but not

JANUARY 1ST, 1883.

rarely it is almost or quite simple. As a species this is very near and usually confounded with *E. pectinatus*, a Mexican plant (under which name it came to Kew). *E. pectinatus* has more (about twenty-three) ribs, sixteen to twenty subrecurved prickles, of which two to five are central, sixty to seventy pulvilli on the tube, and fewer (sixteen to eighteen) oblong petals.

Dr. Engelmann enumerates three varieties of *E. cæspitosus*,—α, *minor*, with shorter more slender not interlaced spines and smaller flowers; β, *major*, with longer stronger interlaced spines and larger flowers; and γ, *castanea*, with red or chestnut-brown spines.

This plant was given to the Royal Gardens by Mr. Croucher, formerly foreman of the propagating department at Kew, and subsequently gardener to Mr. Peacock at Hammersmith, and now in the United States of America.

Descr. *Stems* four to six inches high by three to four in diameter, simple or clustered, cylindric-ovoid, pale greyish or whitish with scanty brown wool. *Ribs* twelve to eighteen, low, one-half to three-quarters of an inch broad at the base. *Pulvilli* close-set, a quarter of an inch apart or more, with twenty to thirty pectinately arranged straight spines a quarter of an inch long or more, mixed with wool; spines white or rosy, appressed to the stem, the lateral much the longest, central none or very few and short. *Tube of the flowers* with eighty to one hundred pulvilli clothed with long ashy wool, and bearing six to sixteen brown or blackish spines. *Inner sepals* eighteen to twenty-five, oblanceolate, entire or toothed. *Petals* thirty to forty, deep rose-coloured, oblong, acute, obtuse or mucronate. *Stigma* funnel-shaped, green, with twelve to eighteen rays. *Berry* green, ovoid. *Seeds* obovate, tubercled, black.—*J. D. H.*

Fig. 1, Group of spines; 2, vertical section of calyx and ovary; 3, pulvillus of tube; 4 and 5, anthers; 6, stigma; 7, ovules:—*all enlarged*.

Vincent Brooks Day & Son Imp

Tab. 6670.

BILLBERGIA Porteana.

Native of Brazil.

Nat. Ord. Bromeliaceæ.—Tribe Bromelieæ.

Genus Billbergia, *Thunb.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 664, *ined.*)

Billbergia (Helicodea) *Porteana;* acaulis, foliis paucis loratis rigide coriaceis 3–4-pedalibus obscure viridibus purpureo tinctis vittis pluribus transversalibus albidis decoratis, pedunculo farinoso foliis subduplo breviori, bracteis pluribus lanceolatis magnis patulis splendide rubris, floribus pluribus ebracteatis in spicam laxam pendulam dispositis, ovario oblongo farinoso multisulcato, calycis segmentis deltoideis parvis, petalis lanceolatis viridibus basi appendiculatis post anthesin spiraliter tortis, staminibus purpureis, antheris linearibus basifixis, stigmatibus spiraliter convolutis.

B. Porteana, *Brong.; Beer. Fam. Bromel.* p. 115; *K. Koch in Wochenschrift* 1860, p. 146; *E. Morren in Belg. Hort.* vol. xxvi. (1876), p. 9, tab. 1–3.

This is one of the most striking of all the cultivated Bromeliaceæ. It belongs to the section of the genus of which the well-known *Billbergia zebrina* (figured in the Botanical Magazine in 1826 at Tab. 2686, under the name of *Bromelia zebrina*, and described by Dean Herbert) is the typical representative. These plants, which Lemaire proposed to separate generically under the name *Helicodea*, are remarkable for the way in which the petals roll up spirally from the top when the flower begins to fade. The present plant was discovered by M. Marius Porte, after whom it is named, in the province of Bahia, in Brazil, in 1849, and was sent by him to M. Morel, of Paris, after whom another very fine species of the genus was named. It was named by M. Adolphe Brongniart, but was first described fully by Dr. Karl Koch. I have seen in the herbarium of the latter the specimen from which this description was made, and a drawing from it is now at Kew. The plant is now widely spread in cultivation, and is universally reckoned one of the most desirable Bro-

meliads for a cultivator to obtain. It flowered with us at Kew for the first time in the summer of 1878, and again in June, 1882, when the present drawing was made.

Descr. Acaulescent. Produced *leaves* five or six in a rosette, erect, lorate, three or four feet long, two or two and a half inches broad at the middle, four inches broad at the base, dull green more or less tinted on the back with claret-purple and marked with irregular transverse bands of white, the marginal prickles deltoid cuspidate, ascending, small and moderately close. *Peduncle* about two feet long, terete, densely farinose, with several large lanceolate bright red spreading bract-leaves. *Flowers* without any special bracts, arranged in a lax drooping simple spike six or eight inches long with a farinose rachis. *Ovary* oblong, half an inch long, densely farinose, with several strong vertical ribs; segments horny, deltoid, not more than half as long as the ovary. *Petals* green, lanceolate, above two inches long, furnished with a pair of minute scales at the base, rolling up spirally from the top when the flower begins to fade. *Filaments* violet-purple, shorter than the petals; anthers linear, basifixed, nearly an inch long. *Ovary* with numerous ovules in a cell; stigmas protruding beyond the anthers, twisting up spirally.—*J. G. Baker.*

Fig. 1. A petal, with its basal appendages; 2, front view of an anther; 3, back view of an anther; 4, pistil, showing a vertical section of the ovary; 5, an ovule:—*all more or less magnified.*

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp

L. Reeve & Co. London

Tab. 6671.

POGONIA Gammieana.

Native of Northern India.

Nat. Ord. Orchideæ.—Tribe Neottieæ.

Genus Pogonia, *Juss.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 615, *ined.*)

Pogonia (Nervilia) *Gammieana;* glaberrima, folio late rotundato-cordato acuminato multinervio margine obscure undulato supra læte viridi subtus pallido, juniore plicato inter nervos seriatim sublacunoso, scapo robusto paucivaginato, racemo 6–10-floro, bracteis linearibus floribus pendulis brevioribus, sepalis petalisque elliptico-lanceolatis acuminatis pallide lilacinis v. carneis, labello elongato sepalis æquilongo v. longiore albo-virescente lobis lateralibus parvis inflexis terminali rotundato-ovato reticulatim venoso crispato piloso, **ovario profunde 6-sulcato.**

Tubers of this plant were received through the Royal Botanic Garden of Calcutta under the name of *Pogonia flabelliformis*, from Mr. Gammie, of the Sikkim Cinchona Plantations; it however differs entirely from that plant in the size, colour, and broad form of the sepals and petals, and in the length of the lip, which equals or exceeds the rest of the perianth. I have a flowering specimen of apparently the same species, collected by myself in hot valleys below Darjeeling in 1847; and another, also flowering only, collected in Kumaon, in the Western Himalaya, at Bagesar, 3500 feet above the sea, by Strachey and Winterbottom; and which is the "Eulophia No. 19" of their Herbarium.

The genus *Pogonia* is not a small one in India; and there are probably a dozen species in the Himalaya, Bengal, and the two Peninsulas; but owing to the delicate nature of their flowers, and to the fact that many of the specimens we possess are either flowerless or leafless, it is impossible to determine them specifically from dried specimens. They should be drawn and analyzed in a fresh

description. As a rule, they are very difficult to keep under cultivation; the beautiful *P. discolor*, Bl. (Plate 6125) did not long survive being figured (in 1874).

P. Gammieana bears the name of one who has contributed greatly to our knowledge of Sikkim plants, by a frequent correspondence with the Royal Gardens of Calcutta and Kew, carried on uninterruptedly for many years. The specimens here figured flowered in May, 1881, and perfected their leaves in July of the same year.

Descr. *Tuber* subglobose, the size of a hazel or walnut, tuberculate. *Leaf* solitary, quite glabrous, four to six inches long and broad, rounded-cordate, acuminate, basal sinus very deep, margin obscurely undulate; nerves very numerous, radiating; young plaited between the nerves, with a row of very shallow broad pits on each fold; deep green above, pale beneath; petiole cylindric, streaked with red-brown, with one obtuse sheath at the base. *Scape* six to eight inches high, green, stout, with three or four sheaths, the lowest of which are streaked with red-brown. *Raceme* six- to eight-flowered, rachis green; bracts linear, slender, membranous, much shorter than the flowers; pedicels very short; flowers drooping. *Ovary* turbinate, deeply six-grooved, brown. *Sepals* and *petals* subequal, three-quarters to one inch long, elliptic lanceolate, acuminate, pale lilac streaked with pale pink. *Lip* pale green, as long as or rather longer than the sepals, narrow, lateral lobes small and folded round the sides of the column, terminal rounded veined with darker green, crumpled, hairy. *Column* smooth, semiterete, one-fourth shorter than the lip. *Anther* depressed-hemispheric.—*J. D. H.*

Fig. 1, Side view of lip and column; 2, ditto seen from above; 3, column; 4, anther-case; 5, pollen masses:—*all enlarged.*

AB. del. J.N Fitch lith.

Vincent Brooks Day & Son Imp

L Reeve & Co. London

Tab. 6672.

MICROGLOSSA albescens.

Native of the Himalaya.

Nat. Ord. Compositæ.—Tribe Asteroideæ.

Genus Microglossa, *DC.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 282.)

Microglossa *albescens*; erecta, suffruticosa, ramis sub-sulcatis, ramulis foliis subtus et inflorescentia cano-pubescentibus, foliis breviter petiolatis lanceolatis acutis v. acuminatis integerrimis, capitulis parvis numerosissimis pedunculatis in paniculas corymbiformes terminales et axillares gracile pedunculatas confertis, involucro campanulato, bracteis anguste lanceolatis acuminatis exterioribus brevioribus, floribus radii azureis, acheniis oblongis angulatis et costatis pubescentibus pappo rufo paullo brevioribus.

M. albescens, *Clarke Comp. Ind.* p. 59; *Hook. f. Fl. Brit. Ind.* vol. ii. p. 257.

M. cabulica *et* M. Griffithii, *Clarke l. c.* pp. 57, 58.

Aster cabulicus, *Lindl. in Bot. Reg.* 1843, *Misc.* 62; *Hook. Comp. Bot. Mag.* 1847, p. 34; *Boiss. Fl. Orient.* vol. iii. p. 158.

Aster ferrugineus, *Edgew. in Trans. Linn. Soc.* vol. xx. p. 64.

Aster albescens, *Walp. Cat.* n. 2974.

Amphiraphis albescens, *DC. Prodr.* vol. v. p. 343.

Conyza conspicua, *Wall. Cat.* n. 3066.

Homostylium cabulicum, *Nees in Linnæa*, vol. xviii. p. 513.

Though cultivated in England so long ago as 1842, this very handsome and hardy shrub is very little known in gardens. It was introduced by Dr. Royle when in charge of the Saharumpore Botanical Gardens, and flowered first in those of the Horticultural Society at Chiswick; where, from the erroneous supposition that the seeds were sent from Affghanistan, it received the name of *Aster cabulicus*. It affords a conspicuous example of the confusion into which Indian Botany fell during the first half of this century, for it received no less than nine names, and was referred to five genera, within a comparatively very short period after its being first known to botanists. As a genus *Microglossa* differs from *Aster* chiefly in the very

small heads, short rays, and not compressed achenes; and from *Erigeron* in the single row of ray-flowers. *M. albescens* differs from its congeners in having a blue ray. It resembles *Aster sikkimensis* (Plate 4557) in the stems forming almost perfect wood the first year, full of leaf-buds in the late autumn, which die down to the root in most winters; but in the present very mild one are persistent up to this date (January 27th).

Microglossa albescens inhabits the temperate regions of the whole length of the Himalaya, from Kishtwar to Sikkim and Bhotan; ascending to 9000 feet in the west, and to 12,000 feet in the east; it has been repeatedly introduced, and flourishes at Kew against a south wall, flowering in June and July, but not ripening seed.

Descr. An undershrub, two to four feet high; branches slender, leaves beneath and inflorescence clothed with hoary whitish pubescence. *Leaves* three to five inches long, shortly petioled, lanceolate, acuminate, quite entire, nerves inconspicuous, base acute, light green above. *Heads* one-third of an inch in diameter, very numerous, in copiously branched axillary and terminal corymbiform peduncles; branches and peduncles slender. *Involucre* campanulate; inner bracts narrowly lanceolate, acuminate, outer shorter. *Ligules* pale blue, quite horizontal, variable in breadth; disk-flowers prominent, yellow. *Achenes* narrow, angled and strongly ribbed, pubescent; rather shorter than the red pappus.—*J. D. H.*

Fig. 1, Head; 2, receptacle and part of involucre; 3, ray-flower; 4, its style-arms; 5, corolla of disk-flower; 6, stamens; 7, style-arms of disk-flower; 8, achene and pappus; 9, pappus hair:—*all enlarged.*

M.S. del. J.N. Fitch lith

Vincent Brooks Day & Son Imp

L. Reeve & Co. London

Tab. 6673.

PSEUDODRACONTIUM Lacourii.

Native of Cochin-china.

Nat. Ord. Aroideæ.—Tribe Pythonieæ.

Genus Pseudodracontium, *N. E. Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 971, *ined.*)

Pseudodracontium *Lacourii*; petiolo scapoque gracili pallide griseo-rufescente olivaceo-fasciato, lamina folii trisecta, segmentis sessilibus v. petiolulatis indivisis v. 2-pluri-partitis, ultimis sessilibus obovato-oblongo- v. elliptico-lanceolatis acuminatis viridibus albo-maculatis, spatha cymbiformi viridi apiculata, spadice robusto spathæ æquilongo, inflorescentia mascula laxiflora quam fœmineam brevem cylindraceam longiore et latiore, staminibus ad 4, antheris clavato-rotundatis, ovariis oblique globosis, stigmate subsessili, appendice crassiuscule stipitato conico obtuso stramineo sinuatim sulcato.

P. Lacourii, *N. E. Br. in Trim. Journ. Bot.* 1882, p. 194.

Amorphophallus Lacourii, *Lindl. et André in Illustr. Hortic.* vol. xxv. p. 90, t. 316.

The singular Aroid here figured is a native of Phuquoc in Cochin-china, and was introduced by M. Linden, of Brussels, to whom the Royal Gardens of Kew are indebted for living plants, which flowered in May of last year. It belongs to the same tribe of the order as the *Amorphophalli*, of which so many Asiatic species have of late been brought under cultivation, and was discovered by M. Contest Lacour, a horticulturist employed by the French Government in Pondicherry and in Cochin-china. It probably attains a much larger size with more divided leaves than are exhibited by the specimen here figured.

Descr. *Petiole* and *peduncle* slender, pale greyish red, banded with olive green, striate, the former four to six inches long, the latter twice as long, both surrounded at the base by loose membranous sheaths. *Blade of leaf* three-sect; the divisions each on petiolules one-half to one inch long and coloured like the petiole, or the central sessile and simple, the lateral two-fid or pinnately three- or more-fid;

segments sessile, elliptic- or obovate- or oblong-lanceolate, four to five inches long by one-half to two inches broad, pale bright yellow-green with scattered round white spots. *Spathe* erect, three inches long, boat-shaped, with an acute recurved point, margins hardly overlapping at the base, pale green. *Spadix* about as long as the spathe, sessile. *Male inflorescence* cylindric, lax-flowered, occupying about half the spadix, broader and much longer than the female, which consists of a short column of densely packed obliquely globose ovaries with capitate sessile stigmas. *Stamens* about four; filaments free, suddenly delated into clavate or very broadly obovate obtuse anthers opening by small lateral slits. *Appendix* stoutly stipitate, conical, obtuse, about one inch long, straw-coloured, sinuately sulcate.—*J. D. H.*

Fig. 1, Male flower; 2, 3, 4, and 5, anthers of different forms and in different positions; 6, ovary; 7, vertical section of ditto; 8, ovule:—*all enlarged.*

M.J. del. J.N. Hoblyn.

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London.

Tab. 6674.

PLEUROPETALUM COSTARICENSE.

Native of Central America.

Nat. Ord. Amaranthaceæ.—Tribe Celosieæ.

Genus Pleuropetalum, *Hook. f.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 157.)

Pleuropetalum *costaricense;* glaberrimum, erectum, foliis alternis petiolatis ovato-lanceolatis acuminatis integerrimis v. marginibus subundulatis, paniculis terminalibus et in axillis supremis ramosis multifloris, floribus parvis confertis breviter pedicellatis bracteatis et 2-bracteolatis, perianthii rubri segmentis 5 ellipticis concavis obtusis, staminibus 5–8 filamentis perianthio subæquilongis antheris parvis, ovario ovoideo-globoso, stigmatibus 3 breviter linearibus obtusis, baccis pisiformibus globosis rubris polyspermis.

P. costaricense, *H. Wendl. MSS.; Hemsl. in Biol. Centr. Amer.* vol. iii. p. 12 (? *excl. Syn.*).

A very handsome half-shrubby plant when in fruit, well adapted for pot-culture in a moderately warm house, where it retains its brilliant berries for several months. It is a native of Central America and Mexico, and if, as explained below, it is the same with *Melanocarpum Sprucei*, its area of distribution extends to Equador in South America. It was sent to Kew by Dr. Wendland, the learned Director of the Imperial Botanical Garden of Herrenhausen, Hanover, under the above name. The specimen here figured flowers in the Palm House of the Royal Gardens in the autumn months, and ripens its fruit in winter.

The genus to which this plant belongs is somewhat doubtful. *Pleuropetalum* was founded by me in 1846, on a single very imperfect specimen of a shrub brought by the late Mr. Darwin from the Galapago Islands, and published in the "London Journal of Botany" (vol. v. p. 108, t. 2), and in the Linnæan Transactions (vol. xx. p. 221); it had eight stamens, with the filaments united below the middle into a membranous cup, and four stigmata. Regarding the bracteoles (which are connate) as sepals, and the

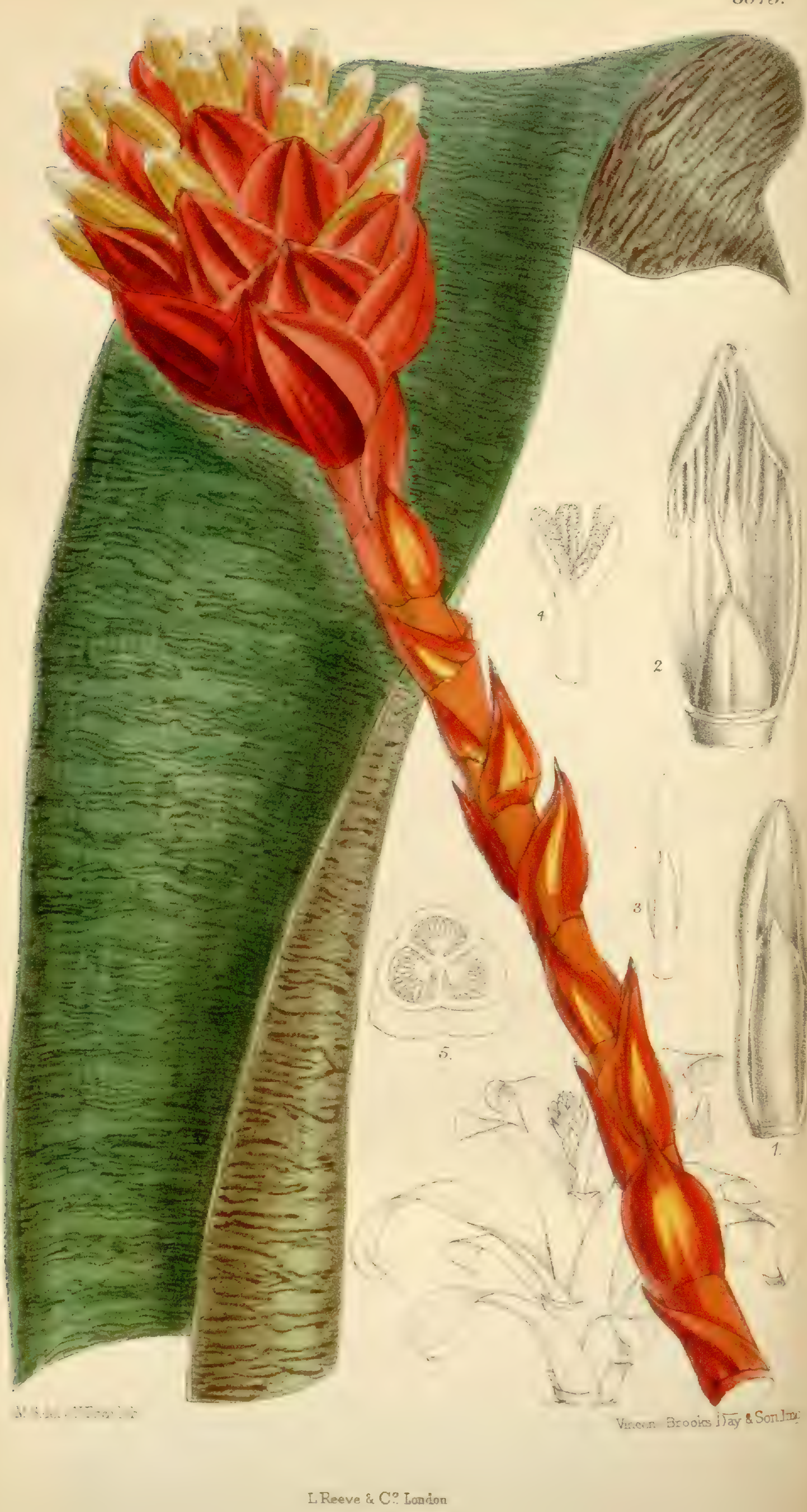
February 1st, 1883.

perianth-segments as petals, I referred it to *Portulaceæ*, and named it (after the many ribs on the dried petals) *Pleuropetalum Darwinii*. The only known specimen of this plant is in the Cambridge University Herbarium, and until better materials should be forthcoming, and especially fruiting ones, it was thought better, when describing the *Portulaceæ* for the first volume of Bentham's and my "Genera Plantarum," to retain it, with a mark of doubt, in that Order. Endlicher, however, in the fourth Supplement to his "Genera Plantarum" (p. 44), had rightly referred it to *Amaranthaceæ*, in which he was followed by Moquin Tandon in De Candolle's Prodromus (vol. xiii. pars 2, p. 463), who, moreover, changed the generic name to *Allochlamys*, on the ground of the perianth-segments not being corolline. When preparing the *Amaranthaceæ* for the "Genera Plantarum," I met with an undescribed plant gathered by Spruce on Chimborazo, which (relying on Spruce's description of the fruit) I described as *Melanocarpum Sprucei* (vol. iii. p. 24), whose similitude to the absent and long-forgotten *Pleuropetalum* I did not recognize, and which differs from that genus in having usually five nearly free stamens, and two to three stigmas. This, which is also found in Mexico, Mr. Hemsly, in the "Biologia Centrali-americana," has regarded as conspecific with the *Pleuropetalum costaricense*, and probably rightly; but it remains to be seen whether both may not be referable specifically to *P. Darwinii*, for which better specimens of the Galapagos plant are necessary.

Descr. A small shrub, quite glabrous; branches smooth, terete, green. *Leaves* petioled, alternate, four to five inches long, elliptic-lanceolate, acuminate, with the tip often drawn out, margin even or obscurely undulate, dark green above, paler beneath, nerves many oblique; petiole one-half to one inch long. *Flowers* small, very numerous in terminal and axillary subcorymbose much-branched panicles, shortly pedicelled, bracteate and two-bracteolate; bracts small, at the base of the pedicel; bracteoles minute, ovate, obtuse, connate at the base. *Perianth* a quarter of an inch in diameter, green at length scarlet; segments five, elliptic-oblong, obtuse, concave, spreading, strongly many-ribbed when dry. *Stamens* five to eight, hypogynous,

filaments subulate, united at the base; anthers small, included, didymous. *Ovary* ovoid, with three to four linear obtuse short spreading stigmas; ovules very many, at the bottom of the cell. *Berries* size of a pea, globose, blood red, shiny, tipped with the stigmas and seated on the persistent perianth. *Seeds* very numerous, black.—*J. D. H.*

Fig. 1, Flower; 2, ovary; 3, vertical section of fruit and perianth; 4, young seed:—*all enlarged.*



Vincent Brooks Day & Son Lith.

TAB. 6675.

CARAGUATA MUSAICA.

Native of New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe TILLANDSIEÆ.

Genus CARAGUATA, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 668, *ined.*)

CARAGUATA (Massangea) *musaica;* acaulis, foliis 12–20 loratis integris cuspidatis utrinque fasciis copiosis vermiformibus transversalibus præditis, facie pallide viridibus fasciis saturate viridibus, dorso purpureo-viridibus fasciis purpurascentibus, pedunculo splendide rubro bracteis multis parvis deltoideis scariosis concoloribus prædito, floribus in capitulum globosum aggregatis, bracteis magnis deltoideis splendide rubris, sepalis lanceolatis cartilagineis glabris luteo tinctis, corollâ albida calyce breviore segmentis oblongis tubo æquilongis, staminibus inclusis ad tubi faucem insertis uniseriatis, ovario ovoideo stylo elongato.

C. musaica, *André in Ill. Hort.* vol. xxiv. (1877), p. 27, t. 268.

MASSANGEA musaica, *E. Morren. in Belg. Hort.* vol. xxvii. (1877), p. 199, t. 8, 9.

TILLANDSIA musaica, *Hort. Linden.; J. Moore in Florist* (1875), p. 15, *cum icone.*

VRIESEA musaica, *Cogn. et Marchand in Dallier Plantes feuill. ornam.* vol. ii. t. 39.

BILLBERGIA musaica, *Regel in Gartenfl.* (1874), p. 378, *cum icone.*

This fine Bromeliad is now widely spread in cultivation, and at once attracts attention by the remarkable marking of its leaves. It was sent in 1871 to Linden, by Gustave Wallis, from a wood, at an altitude of 3000 feet above sea-level, near Teorama, in the neighbourhood of Ocana, in New Granada, and was received in the same year direct by Mr. Wm. Bull. It was first exhibited by Mr. Bull in flower to the Royal Horticultural Society in April, 1875. Professor Morren, who gives a full and excellent account of its history and characters in the volume of the Belgique Horticole above cited, has founded upon it his genus *Massangea*, which principally differs from *Caraguata*, as represented by the well-known *C. ligulata* of Lindley, and *C. Zahnii*, by the corolla being much smaller than the calyx.

MARCH 1ST, 1883.

Our drawing was made from a specimen that flowered at Kew in October, 1882.

Descr. Acaulescent. *Leaves* lorate, twelve to twenty in a rosette, rather cartilaginous in texture, obtuse with a deltoid cusp, one and a half or two feet long, two or three inches broad at the middle, marked with copious slender transverse wavy vermiform lines on both surfaces, those of the face dark green on a pale green groundwork, those of the back bright purple on a purplish-green glossy ground. *Peduncle* central, a foot long, bright scarlet down the base, furnished with numerous small scariose deltoid bract-leaves of the same colour. *Flowers* about twenty, aggregated into a globose capitulum, each subtended by a large bright red deltoid bract. *Calyx* of three, lanceolate, cartilaginous, sepals above an inch long, glabrous, free to the base, tinged yellow. *Corolla* white, much shorter than the calyx, with an oblong tube and three oblong segments. *Stamens* inserted in a single row at the throat of the corolla-tube; filaments very short; anthers linear. *Ovary* ovoid; style elongated; stigmas three, oblong, not spirally twisted.—*J. G. Baker.*

Fig. 1, Calyx cut open so as to show the corolla; 2, corolla cut open so as to show the stamens and pistil; 3, a stamen, viewed from the back; 4, summit of the style, with the three stigmas; 5, horizontal section of ovary:—*all more or less enlarged.*

M.S del. J.N.Fitch lith.

Vincent Brooks Day & Son Lap

TAB. 6676.

EUCHARIS SANDERII.

Native of New Granada.

Nat. Ord. AMARYLLIDEÆ.—Tribe AMARYLLEÆ.

Genus EUCHARIS, *Planch.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 731, *ined.*)

EUCHARIS *Sanderii;* bulbo ovoideo, foliis petiolatis cordato-ovatis cuspidatis, magnis membranaceis viridibus, venis primariis 6–10-jugis venulis transversalibus crebris conspicuis, scapo tereti subpedali, umbellis 2–3-floris, spathæ valvis lanceolatis acuminatis viridibus, pedicellis brevissimis, ovario oblongo-trigono, ovulis in loculo pluribus horizontalibus, perianthii tubo curvato sursum late infundibulari deorsum cylindrico, segmentis late ovatis niveis, coronâ ad tubi apicem adnata striis luteis ornata margine libero angustissimo, filamentorum parte libero lineari incurvato, antheris linearibus, stylo ex tubo exserto apice stigmatoso incrassato trilobato.

This new *Eucharis* will, no doubt, be a very popular plant. It has completely the habit and foliage of the well-known *Eucharis grandiflora*, but the corona is almost entirely adnate to the dilated upper portion of the perianth-tube, leaving only a narrow collar-like free border, upon which the distinct portion of the filaments is inserted. It comes from the same country as *E. grandiflora* and *candida*, and requires similar treatment. It was introduced by Messrs. J. Sander and Co., of St. Albans, after whom it is named, in March, 1882. The bulbs with which they supplied us flowered at Kew in November and December, and it was from one of these that the accompanying figure was drawn.

DESCR. *Bulbs* ovoid, one and a half or two inches in diameter, with brown tunics and a short distinct neck. *Leaves* two to a scape; petiole four or six inches long, flattened on the face; blade cordate-ovate, cuspidate, eight or ten inches long, five or six inches broad, membranous in texture, quite glabrous, bright green on the face, pale green

on the back, with six to ten pairs of arcuate primary veins, connected by close distinct cross-veinlets. *Scape* terete, about a foot long. *Spathe-valves* three or four, lanceolate acuminate, green, unequal. *Flowers* two or three in an umbel, not distinctly scented; pedicels very short; ovary oblong-trigonous, half an inch long in the flowering stage, with about twenty horizontal ovules in each of the three cells; perianth-tube curved, two inches long, cylindrical in the lower part, tinged with green, dilated into a funnel in the upper third; limb pure white, about two inches in diameter when expanded; segments ovate, much imbricated. *Corona* adnate to the upper portion of the perianth-tube, except a very narrow free border, furnished with six primrose-yellow vertical stripes; free portion of the filaments incurved, a third of an inch long; anthers linear. *Style* protruded from the corolla-tube, thickened and distinctly three-lobed at the stigmatose apex.—*J. G. Baker.*

Fig. 1. Anther, viewed from the front; 2, anther, viewed from the back; 3, stigma:—*all enlarged.*

M.S. del. Vincent Brooks Day & Son. Imp.

L. Reeve & Co. London.

TAB. 6677.

THUNBERGIA KIRKII.

Native of East Tropical Africa.

Nat. Ord. ACANTHACEÆ.—Tribe THUNBERGIEÆ.

Genus THUNBERGIA, *Linn. f.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1072.)

THUNBERGIA *Kirkii*; erecta, gracilis, glaberrima, foliis breviter petiolatis lanceolatis v. trapezoideo-lanceolatis subacutis apiculatis 3-nerviis integerrimis v. utrinque obtuse sinuato-unidentatis 3-nerviis, cymis axillaribus 2-floris, bracteolis oblongis subacutis tubo corollæ paullo longioribus, calyce annulari irregulariter dentato, corollæ cœruleæ tubo brevi, fauce campanulato longiore, limbi lobis brevibus late obovatis retusis.

Tropical Africa is rich in species of *Thunbergia*, including plants referred to *Meyenia* (now reduced to a section of the genus), especially of the erect forms, to which belong the *T. natalensis* (Plate 5082), *Meyenia Vogeliana* (Plate 5389), unfortunately lost to our gardens, and *M. erecta* (Plate 5013). These all differ from the Indian species in never climbing, but, as with *T. Kirkii*, forming bushes with rigid stems and branches; they further differ from such types as *T. alala* (Plate 2591) in the corolla-lobes being comparatively (to the tube and throat) smaller, and not so flat and horizontally patent. Amongst other superb species yet to be introduced into our gardens from Africa as especially handsome are the above-mentioned *T. Vogeliana*, Benth., from Fernando Po, which forms a shrub 20 feet high, bearing a profusion of violet-coloured flowers two inches long; *T. lancifolia*, T. Anders., of Angola, with deep blue flowers as much in diameter.

Thunbergia Kirkii is most nearly allied to *T. erecta* (Plate 5013), in which there is the same tendency to a rhomboid form of leaf, but which has a much larger and deeper coloured flower, a calyx of many equal subulate teeth, and which is a native of the opposite (western)

MARCH 1ST, 1883.

African coast, whereas *T. Kirkii* has been found only at Mombasa, N. of Zanzibar, in latitude 4° S., where it was discovered by the Rev. Mr. Wakefield, who communicated specimens to Col. Grant in 1876, without flower, however. The specimen here figured was from a plant received from Sir John Kirk, K.C.M.G., which flowered in the Royal Gardens in September, 1882.

Descr. A small shrub two to three feet high, with slender rigid divaricating acutely four-angled stem and branches. *Leaves* one and a half to three inches long by half to three-quarters of an inch broad, very shortly petioled, lanceolate, subacute or obtuse, apiculate with the excurrent midrib, quite entire or with each side dilated into an obtuse lobe, giving a rhomboid form, three-nerved, rigid, dark green above, paler beneath. *Flowers* in two-flowered short cymes; peduncle and pedicels short, stiff. *Bracteoles* one-third of an inch long, oblong, subacute, green. *Calyx* a very short irregularly obtusely toothed cup. *Corolla* one and a quarter inches long; tube short, slender, one-third the length of the campanulate limb; lobes spreading, but not horizontally, broadly obovate, retuse, violet-blue. *Stamens* at the top of the tube, slightly hairy at the very bases of the filaments, or on the corolla below their insertion; anthers acute. *Ovary* glabrous, stigma shortly two-lipped.—*J. D. H.*

Fig. 1, Portion of corolla and stamens; 2, calyx and ovary; 3, stigma:—*all enlarged.*

6678.

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London

TAB. 6678.

FRAXINUS MARIESII.

Native of North China.

Nat. Ord. OLEACEÆ.—Tribe FRAXINEÆ.

Genus FRAXINUS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 676.)

FRAXINUS (Ornus) *Mariesii*; petiolis paniculisque tenuissime puberulis, foliolis 2-jugis lateralibus subsessilibus ovatis obovatis oblongisve acutis obtusis v. acuminatis integerrimis v. supra medium serratis utrinque glabris, terminali petiolulato obovato v. oblanceolato, paniculis confertis foliis subæquilongis ramis gracillimis strictis erecto-patentibus, fl. ♂ calyce minuto, corolla lineari-oblonga v. oblanceolata obtusa v. subacuta, staminibus petalis æquilongis.

The subject of this Plate is a small tree which is likely to become a favourite in our parks and ornamental grounds, from its profusion of white flowers, in which respect it rivals its near ally the Manna Ash of S. Europe, a tree much more rarely cultivated than it should be. The section of "Flowering Ashes" to which it belongs are probably, with one exception, all hardy, being natives of north temperate regions all round the globe, except America east of the Rocky Mountains, and are all beautiful trees. Of these the best known is the S. European Manna Ash, mentioned above, which extends along the Mediterranean region from Spain to Turkey. In North India it is replaced by the *F. floribunda*, Wallich, which occurs along the whole range of the Himalaya. In N. China this again is replaced by *F. Bungeana*, A. DC., and in S. China, Hongkong, by *F. retusa*, a species which is probably not hardy; in Japan by *F. Sieboldiana*, Blume, and in California by *F. depetala*. The absence of any representation in America east of the Rocky Mountains, whilst one is present to the west of that range, is one of the remarkable exceptions to the well-known fact of the Flora of the Eastern United States being more nearly allied to that of N. E. Asia, than is that of the Western States.

MARCH 1ST, 1883.

The nearest ally of *F. Mariesii* is the Chinese *F. Bungeana*, which differs in the slender long petiolules of the leaflets, which are also more strongly serrated; otherwise the species are, in so far as can be judged from males alone, very alike; I have seen no fruits of either.

F. Mariesii is a discovery of Mr. Maries, when travelling for Messrs. Veitch in China, who sent dried specimens from the province of Kiu Kiang, together with seeds, from which the plants were propagated, which afforded the Plate here produced; they flowered in Mr. Veitch's nursery at Coombe Wood in May last.

DESCR. A small tree, glabrous in all its parts except the petioles, rachis of the leaf, and branches of the panicle, which are covered with a very fine pubescence, hardly visible to the naked eye, branches rather slender. *Leaves* four to six inches long; petiole and rachis very slender; leaflets two pairs and an odd one, one to three inches long, sessile or narrowed into an exceedingly short petiole, ovate obovate or lanceolate, obtuse acute or acuminate, glabrous, quite entire or serrated beyond the middle, pale green. *Panicles* very numerous from the uppermost axils, about as long as the leaves, strict, erect; branches erecto-patent, slender, strict. *Flowers* (♂ only seen) shortly pedicelled. *Calyx* minute, four-cleft, lobes puberulous. *Petals* five to six, one-fourth of an inch long, linear-oblong or oblanceolate, obtuse or subacute, white. *Stamens* two to four, about as long as the petals, filaments slender; anthers ovate. *Female flowers*, fruit not seen.—*J. D. H.*

Figs. 1 and 2, Flowers with five and six petals respectively; 4 and 5, back and front views of anthers:—*all enlarged.*

M. S. del. et lith. Fitch Ipsn.

Vincent Brooks Day & Son. Imp.

1 2 3

L. Reeve & Co. London.

TAB. 6679.

COMPARETTIA MACROPLECTRON.

Native of New Granada.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus COMPARETTIA, *Pœpp. et Endl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 558, *ined.*)

COMPARETTIA *macroplectron;* foliis lineari-oblongis acutis crasse coriaceis supra convexis marginibus recurvis subtus pallide ferrugineo-irroratis, racemo gracile pedunculato pendulo subsexfloro, bracteis parvis, sepalo postico oblongo acuminato, lateralibus in laminam cymbiformem acuminatam labello supposita dorso in calcar unicum longissimum productam connatis, petalis obovatis acuminatis pallide roseis rubro-punctatis, labello amplo roseo maculis pallide rubris consperso, ungue brevi utrinque auriculato medio carina elevata acuto, lamina transverse oblonga breviter 2-fida sinu acuto lobis undulatis.

C. macroplectron, *Reichb. f. et Triana in Gard. Chron.* 1878, vol. ii. p. 524, *et* 1879, vol. i. p. 398; *Williams Orchid Album*, t. 65.

The genus *Comparettia* consists of but few species, of which this is far the handsomest; it inhabits the rich Orchid districts of the Andes, from Mexico to New Granada, where the species here figured was discovered by Senor Triana. Though a much larger flowered plant, it is much inferior in the colour of the flower to *L. falcata*, Pœpp., figured at Plate 4980 of this work, the vivid hues of the lip in which are scarcely to be surpassed: it further differs remarkably from that plant in the great length of the spur. *C. macroplectron* was, I believe, first imported into and flowered in England by Messrs. Low, but the specimen here figured was sent in 1881 to the Royal Gardens by Mr. Jeuman, when Superintendent of the Jamaica Botanical Gardens in that island, and it flowered in October of last year.

DESCR. *Pseudobulbs* none; base of very short stem clothed with distichous rigid bases of old leaves. *Leaves* two to three, four to five inches long, by one-half to one and a

quarter inch broad, thickly coriaceous, linear-oblong, acute, convex above, with a deep central furrow, margins recurved, green above, beneath pale and faintly streaked with rusty yellow. *Racemes* four- to six-flowered, pendulous from a slender curved peduncle of about the same length; sheaths few, small, distant, scarious; bracts one-sixth to one-fourth of an inch long, membranous or minute and tooth-like. *Flowers* distichous, nearly two inches long from the tip of the dorsal sepal to the end of the lip, pale rose-coloured speckled with red; pedicel and ovary together nearly an inch long. *Dorsal sepal* oblong, acute, pale; two lateral sepals combined into a white boat-shaped acuminate lamina under the lip, from the base of the back of which descend a long nearly straight or curved spur two inches long, concealed within which again are the two slender spurs of the lip itself, which extend for more than half its length. *Petals* about as long as the dorsal sepal, oblong, acuminate, brightly speckled with red. *Lip* very large, shortly clawed, claw with two small side auricles and a mesial longitudinal ridge; blade of the lip transversely oblong, narrowed at the base, cleft at the broad rounded end, the cleft acute, its lobes short, acute, margins waved; the lip is a deeper rose-colour than the petals, and has larger and less vivid spots; the spurs of the lip are very slender, and papillose towards the tips, which are shortly villous.—*J. D. H.*

Fig. 1, Column, and claw of lip, &c.; 2, anther-case; 3 and 4, pollinia:—*all enlarged.*

Vincent Brooks Day & Son Imp.

L. Reeve & Co.º London.

Tab. 6680.

SAXIFRAGA cortusifolia.

Native of Japan.

Nat. Ord. Saxifragaceæ.—Tribe Saxifrageæ.

Genus Saxifraga, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 635.)

Saxifraga (Hydatica) *cortusifolia;* estolonifera, paleaceo-pilosa v. glabrata, foliis omnibus radicalibus crasse petiolatis rotundatis basi cordatis v. subreniformibus breviter 5-∞-lobis crassis setosis denum glabratis, lobis crenatis rotundatis v. rarius subacutis, vaginis brevibus longe ciliatis, scapo valido, panicula ampla ramosa ramis elongatis erecto-patentibus, sepalis liberis oblongis obtusis, petalis totis albis anguste linearibus acutis 1–3 ceteris multoties longioribus, carpellis ultra medium connatis, stylis continuis elongatis rectis, stigmatibus parvis.

S. cortusifolia, *Sieb. et Zucc. Fl. Jap. Fam. Nat.* vol. i. p. 190, Ykumayu-ssai, *Soo Bokf.* vol. viii. fol. 12–15; *Maxim. Mel. Biol. dec.* xii. p. 599.

A very near ally of the old "Strawberry Saxifrage," *S. sarmentosa*, L. (Plate 92 of this work), and still more near *S. Fortunei* (Plate 5377), which, indeed, Professor Maximovicz has doubtfully regarded as a variety of it; but differing from the former in the want of strawberry-like runners, and form of the leaves; and from the latter in the much smaller flowers with entire petals. All are remarkable for the inequality of the petals, of which one or more exceed the rest by many times their length; a peculiarity in the floral development repeated in a plant of widely different affinity, lately figured in this work, the *Chionographis* japonica, Plate 6510. All are natives of South China and Japan.

S. cortusifolia is, probably, a very variable plant, several forms of it being figured in the Japanese botanical work quoted as the Soo Bokf., differing greatly in the form and cutting of the lobes of the leaf. The specimen here figured was communicated by Messrs. Veitch, who raised it from Japanese seed sent by their admirable collector, Mr. Maries. It flowered in October.

Descr. A stout herbaceous perennial, more or less clothed

with coarse cellular hairs on the leaves and scape below, and with finer ones on the panicle above. *Roots* without stolons. *Stems* none. *Leaves* on stout petioles, orbicular with a cordate base or subreniform, two to three inches in diameter, shallowly five- to many-lobed, the lobes rounded and obtuse or triangular and acute, crenate or toothed; nerves radiating from the petiole, bright green above, fading to bright red-brown or red; petiole two to three inches long, sheath half to three-quarters of an inch, ciliate with long hairs. *Scape* long or short, stout, bearing a large open panicle often seven to eight inches long and five to six broad; branches erecto-patent; bracts ovate, ciliate. *Flowers* on slender pedicels, one-third to one-half of an inch across the smaller petals. *Sepals* nearly free, oblong, obtuse, green, about half the length of the smaller petals. *Petals* linear, subacute, white, unspotted, the one to three longer ones one-half to three-quarters of an inch long. *Filaments* slender; anthers bright red-brown. *Ovary* free; carpels united to above the middle, ending in straight suberect styles with small capitate stigmas.—*J. D. H.*

Figs. 1 and 2, Anthers; 3, ovary:—*all enlarged.*

Vincent Brooks Day & Son Imp

Tab. 6681.

MEDINILLA amabilis.

Native of Java.

Nat. Ord. Melastomaceæ.—Tribe Medinilleæ.

Genus Medinilla, *Gaud.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 759.)

Medinilla *amabilis*; glaberrima, ramulis 4-gonis angulis crispato-alatis, foliis amplis oppositis sessilibus late obovato- v. elliptico-oblongis acutis quintuplinerviis marginibus undulatis basi obtusis v. cordatis, nervis crassis, paniculis maximis terminalibus erectis pyramidatis crasse pedunculatis ramosis multifloris, pedunculo rachi ramisque (primariis verticillatis) crassis teretibus ultimis roseis, bracteis 0, floribus crasse pedicellatis amplis roseis, calycis tubo hemispherico limbo annulari truncato integerrimo v. obscure sinuato, petalis obovato-oblongis, staminibus 10 antheris pallide violaceis.

M. amabilis, *Dyer in Gard. Chron.* 1874, part i. p. 372, fig. 81; *Bull Retail List of New, &c., Plants*, 1874, p. 13.

Though differing in habit, this is quite as striking a plant as the *M. magnifica* (Plate 4533), which it excels in the size of the flowers, but falls far short of in wanting the beautiful coloured bracts of that species. It is much more nearly allied to *M. speciosa*, Blume (Bot. Mag. Plate 4321), which differs in the long internodes with smooth margins, and in the pendulous panicle of smaller flowers; and to *M. javanensis*, Plate 4569, also a small-flowered species with four-angled internodes and truncate petals. Our specimen formed an erect shrub, but so many species are scandent that this may be so in a fully developed condition. When published by Mr. Dyer the native country of this species was unknown, and as it could not be matched with any described species, it might well have been supposed to have come from some of the little explored islands to the eastward of the Malayan groups. Now that we are informed by Mr. Bull that it is a native of Java, it cannot but surprise us that so striking a plant should inhabit an island so well known botanically, and have remained un-

April 1st, 1883.

described so long. No less than eight Javan species are enumerated in the Catalogue of the Buitenzorg Garden in Java, and sixteen are described as natives of that island by Miquel, but I am unable to refer *M. amabilis* to any of these.

The specimen figured flowered at the Royal Gardens in August last; it was presented by Mr. Bull, who imported the plant upwards of ten years ago.

Descr. Quite glabrous, shrubby. *Stem* and *branches* four-angled; angles with short crisped or crenately waved wings. *Leaves* very large, a foot long by six to eight inches broad, sessile, obovate- or elliptic-oblong, acute, often concave, quintuple-nerved, margin wavy, nerves very stout, texture thick, colour very bright-green; base cuneate or cordate. *Panicles* terminal, erect, peduncled, pyramidal, much branched, a foot high, by six to nine inches broad; peduncle as thick as the finger, cylindric, smooth; branches horizontal, whorled, and branchlets stout terete pale, the ultimate ones rosy, bracts none. *Flowers* shortly peduncled, rose-coloured, one and a half to two inches in diameter. *Calyx-tube* hemispheric, limb a short thin erect ring obscurely five-lobed or quite truncate. *Petals* obovate-oblong, obtuse, concave, thick. *Stamens* ten; anthers pale violet, slender, upcurved, connectives bigibbous at the base; shorter anthers about one-third smaller than the longer.—*J. D. H.*

Fig. 1, Flower cut vertically; 2, calyx; 3 and 4, stamens; 5, tip of style and stigma;—*all enlarged.*

M.S.del. J.N.Fitch

Vincent Brooks Day & Son Imp

TAB. 6682.

HOYA LINEARIS.

Native of the Himalaya.

Nat. Ord. ASCLEPIADEÆ.—Tribe MARSDENIEÆ.

Genus HOYA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 776.)

HOYA *linearis;* plus minusve hirsuta, ramis elongatis gracillimis pendulis flaccidis simpliciusculis, foliis 1½–2-pollicaribus breviter petiolatis angustis teretibus dorso canaliculatis, umbellis terminalibus subsessilibus laxis multifloris, sepalis brevibus ovato-lanceolatis hirsutis, corolla alba convexa intus glabra v. papillosa, lobis brevibus obtusis, coronæ processubus stellatim patentibus.

H. linearis, *Wall. in Wight Contrib.* p. 37; *Cat.* 8155; *Don. Prodr. Fl. Nep.* p. 130; *Dcne. in DC. Prodr.* vol. viii. p. 637.

Var. *sikkimensis;* corolla intus glabra, coronæ processubus subcylindraceo-ovoideis obtusis. *Hook. f. in Fl. Brit. Ind.* vol. iv. p. 53 (*ined.*).

The genus *Hoya* attains its maximum in transgangetic India, and there are still many beautiful species to be imported, especially from Assam, Burma, and the Malay Peninsula and Islands. Westward the genus rapidly diminishes in number of species, and is confined to the hotter and damper valleys of the Himalaya. In the most recent examination of the Indian Hoyas (Flora of British India, *ined.*) there are described seventeen species from the country extending from Burma to Malacca; thirteen inhabit the Khasia Mountains and Assam; ten are found in Sikkim; four of the latter in Nepal, and only two of these enter Kumaon, which is the western as well as northern limit of the genus; five are known in the mountains of the Deccan Peninsula, and only two in Ceylon. By far the most gorgeous species are natives of Borneo and the Moluccas, from whence the allies and rivals of *H. imperialis*, namely *H. grandiflora*, Blume, *H. Ariadne*, Dcne., *A. lutea*, Dcne., are to be obtained.

H. linearis was founded by Wight on Wallich's Nepal

APRIL 1ST, 1883.

specimens. I have examined these in Wight's Herbarium, and find that the corolla is papillose within and its coronal lobes broader and flatter than in the Sikkim specimens; unfortunately, however, these flowers are detached from the leaves, and may probably belong to another species (*H. lanceolata*). On the other hand the form of the coronal processes is not so constant in some Hoyas, as that species can safely be founded on it alone; and I have therefore adopted the course of regarding the Sikkim plant as a variety of the Nepal one. I need not remind the reader that Sikkim and Nepal are coterminous provinces, with almost identical vegetation, and that it is extremely improbable, having regard to the distribution of Hoyas, that a strictly endemic species of it should exist in Nepal alone.

The specimen figured flowered in Messrs. Veitch's establishment in October last.

Descr. More or less hirsute with soft spreading hairs. *Stems* tufted, pendulous, very slender, flexuous, a foot long and upwards. *Leaves* one and a half to two inches long by one-eighth to one-sixth of an inch in diameter, shortly petioled, cylindric, subacute, deeply grooved beneath, dark green. *Flowers* in a sessile terminal lax umbel; pedicels one to one and a half inch long. *Calyx-lobes* small, hirsute, ovate-lanceolate. *Corolla* half an inch in diameter, white, recurved, glabrous within; lobes short, broad, obtuse. *Coronal processes* stellately spreading, obtuse, subcylindric, very pale pink.—*J. D. H.*

Fig. 1, Calyx; 2, corona viewed from above, and 3, from the side:—*all enlarged*

M.S. del. J.N.Fitch lith.

Vincent Brooks Day & Son Imp

TAB. 6683.

LÆLIA MONOPHYLLA.

Native of Jamaica.

Nat. Ord. ORCHIDEÆ.—Tribe EPIDENDREÆ.

Genus LÆLIA, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 533, *ined.*)

LÆLIA *monophylla*; rhizomate repente ramoso, caulibus pluribus gracilibus erectis 1-foliatis infra folium longe vaginatis, folio anguste lineari-oblongo obtusiusculo, scapo elongato gracili uni-(rarissime bi-)floro vaginis remotis cylindraceis appressis aucto, perianthio aurantiaco-coccineo 1–1½ poll. diametro, sepalis petalisque patentibus subæqualibus oblongis subacutis, labello parvo columnam amplectente, lobis lateralibus angustis rotundatis terminali brevissimo recurvo rotundato, disco papilloso, clinandrio dorso crenulato.

L. monophylla, *N. E. Brown in Gard. Chron.* vol. xviii. (1882), p. 782.
TRIGONIDIUM monophyllum, *Griesb. Fl. Brit. W. Ind.* p. 629.
OCTADESMIA monophylla, *Benth. in Gen. Pl.* vol. iii. p. 526.

Unlike as this pretty plant is to most of its congeners, I am unable to find any character by which it should be removed from the genus to which Mr. N. E. Brown has referred it; except indeed, as may well be held in many cases, habit should be made available. This, however, is allowable only when the characters which habit affords are trenchant, and not those of a transitional nature, or such as may be expected to occur in a genus, from certain tendencies shown amongst its species. Now in the case of *Lælia* there are species showing a strong tendency to the habit of *L. monophylla*, notably the beautiful *L. cinnabarina*, Plate 4302, in which the pseudo-bulbs are suppressed, and the usually large lip of *Lælia* is represented by an organ little larger in proportion to the size of the flower than is that of *L. monophylla*. The red colour of the perianth of *L. monophylla*, too, so unusual in *Lælia*, is represented by one as vivid, though of a much yellower tint, in *L. cinnabarina*.

APRIL 1ST, 1883.

L. monophylla is a native of the mountains of Jamaica, where it was discovered by the late Dr. Bancroft upwards of half a century ago, and communicated to Sir W. Hooker. It has since been collected by Mr. Morris, Director of Gardens and Plantations, and by Mr. G. Syme, the Superintendent of the Botanical Gardens in Jamaica, growing on trees at elevations of 3000 to 5000 feet above the sea.

Living specimens communicated from those Gardens by Mr. Morris in 1881 flowered at Kew in October of the following year.

Descr. *Pseudo-bulbs* none; rhizomes forming a branched matted mass sending up tufts of leafing and flowering stems. *Stem* including the flowering scape six to ten inches high, as thick as a crow-quill, rigid, erect; basal part below the leaf one to two inches long, clothed with long tubular appressed sheaths speckled with pink. *Leaf* solitary, suberect, sessile, two to three inches long by one-half to two-thirds of an inch broad, narrowly linear-oblong, obtuse, coriaceous, midrib strong beneath, deep green above, paler beneath. *Scape* much longer than the leaf, slender, with two or three speckled sheaths one-half to one inch long, similar to those below the leaf, the uppermost enveloping the base of the ovary. *Flowers* suberect, one to two inches in diameter, vivid orange-scarlet all over, except the purple anther-cap. *Sepals* and petals similar, spreading, oblong, subacute. *Lip* very small, embracing the column, lateral lobes very narrow, rounded; terminal minute, spreading, rounded, papillose on the disk. *Column* with the dorsal margin of the clinandrium crenulate.—*J. D. H.*

Fig. 1, Column and lip; 2, clinandrium; 3, anther-cap; 4 and 5, front and back view of pollinea:—*all enlarged.*

M.S. del. J.N.Fitch lith.

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London.

TAB. 6684.

HAMAMELIS VIRGINIANA.

Native of the United States.

Nat. Ord. HAMAMELIDEÆ.

Genus HAMAMELIS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 667.)

HAMAMELIS *virginiana*; fruticosa v. subarborea, ramulis ultimis petiolis nervisque foliorum subtus furfuraceo-puberulis, foliis ovalis oblongis obovatisve grosse crenato-dentatis v. serratis obtusiusculis basi cuneatis v. cordatis inæquilateralibus, nervis paucis validis, calycis lobis patentibus pallidis, capsula calyce persistente vix duplo longiore.

H. virginiana, *Linn. Sp. Pl.* p. 124 (1753); *Torr. et Gr. Fl. N. Am.* vol. i. p. 597; *G. B. Emerson Trees and Shrubs of Massachusetts*, ed. 2, vol. ii. p. 472, *cum ic. pict.*

H. virginica, *Linn. Syst. Nat.* ed. xiii. p. 129 (1767); *Ait. Hort. Kew.* vol. i. p. 167; *Schkuhr Handb.* vol. i. p. 88, t. 27; *Lodd. Bot. Cab.* t. 598; *Barton Fl. N. Am.* vol. iii. p. 21, t. 78; *Loudon Arboret.* p. 1007, t. 756, 757; *DC. Prodr.* vol. iv. p. 268; *A. Gray Man. Bot.* ed. 5, p. 173.

H. dioica et androgyna? *Walter Carolina*, p. 255.

H. corylifolia, *Mœnch. Meth.* p. 273.

H. macrophylla, *Pursh, Fl.* p. 116.

TRILOPUS virginiana, nigra, rotundifolia et dentata, *Raf. New. Fl.* vol. iii. pp. 15–17.

This, the common Witch Hazel of the United States, derives its name from its resemblance to the English hazel in leaf, a circumstance which led to its use as a divining-rod in the early days of the American Colonies. It abounds in moist woods, and especially along the banks of streams east of the Mississippi from Canada to Louisiana, sometimes attaining twenty feet in height. Like so many other Eastern American trees and bushes, it puts on gorgeous colour at the fall of the leaf, and contributes not a little to the variegated hues of the forests in autumn. G. B. Emerson, in his account of the trees and shrubs of Massachusetts, says of it, "Amongst the crimson and yellow hues of the falling leaves there is no more remarkable object than the Witch Hazel, in the moment of its

APRIL 1ST, 1883.

parting with its foliage, putting forth a profusion of gaudy yellow blossoms, and giving to November the counterfeited appearance of spring. The union on the same individual of blossoms, fading leaves, and ripe fruits, not very common in any climate, led Linnæus to give to an American plant a Greek name, significant of the fact of its producing flowers together with the fruit."—Vol. ii. p. 472.

In Plate 6659 of last year's volume of this work, the rare *H. japonica* is figured, and the slight diagnostic characters which separate it from this are alluded to. Of these the chief are the more numerous leaf-nerves, broader revolute brown calyx-lobes, and shorter fruiting calyx of the Japan plant.

The Witch Hazel, though rare enough in modern gardens, is a very old denizen of England, having been introduced in 1736. It flowers annually in Kew in winter, but in very various months.

Descr. A bush or small tree, attaining twenty feet; branchlets puberulous, bifarious, slender. *Leaves* very irregular in form, from rounded obovate to ovate elliptic or oblong, usually unequally two-lobed at the base, three to six inches long, sometimes nearly as broad, margin waved, coarsely toothed or lobulate; nerves strong, five to seven pairs, stellately pubescent, at length glabrous; petiole rather short; stipules lanceolate. *Flowers* in small globose peduncled axillary involucrate heads, polygamous. *Calyx* one-quarter of an inch in diameter, with a brown scale-like bract at its base; tube pubescent, obconic; lobes broadly ovate, obtuse, brown externally, pale within, ciliate. *Petals* strap-shaped, golden yellow, one-half to two-thirds of an inch long. *Stamens* four, alternating with as many incurved staminodes. *Ovary* hairy; styles recurved. *Capsule* ovoid, invested half-way up by the enlarged calyx.—*J. D. H.*

Fig. 1, Flower; 2, petal; 3, stamen and staminodes; 4 and 5, stamens; 6, staminode; 7, ovary; 8, vertical section of young carpel; 9, ripe fruit; 10, seed; 11, embryo; 12, ripe fruit of *H. japonica;* 13, seed of ditto; 14, embryo of ditto: —*all enlarged.*

M.S. del. J.N. Fitch lith

Vincent Brooks Day & Son Imp

L. Reeve & Co. London.

TAB. 6685.

CADIA ELLISIANA.

Native of Madagascar.

Nat. Ord. LEGUMINOSÆ.—Tribe SOPHOREÆ.

Genus CADIA, *Forsk.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 560.)

CADIA *Ellisiana*; glaberrima, ramis ramulisque gracilibus, foliis impari-pinnatis foliolis 7–9 elliptico- v. oblongo-lanceolatis breviter petiolulatis obtuse acuminatis nitidis, petiolo basi incrassato, racemis paucifloris breviter pedunculatis, floribus gracile pedicellatis, calyce campanulato breviter 5-lobo, lobis late ovatis acutis, petalis spathulato-obovatis calyce duplo longioribus roseis apicibus dilatatis subtruncatis, leguminibus oblanceolatis falcatis in stipitem gracilem longe productis stylo elongato-subulato.

C. Ellisiana, *Baker in Journ. Linn. Soc. Bot.* vol. xx. p. 135.

The genus *Cadia* is remarkable amongst *Leguminosæ* for its regular flowers, resembling a good deal those of a Mallow or Sida. Only three species are known, natives of eastern tropical Africa, southern Arabia, and Madagascar. *C. Ellisiana* differs remarkably from its congeners in the very few and large leaflets; those of the African species, *C. varia*, are in twenty to forty pairs and very narrow, whilst in the other Madagascar species, *C. pubescens*, they are in eight to ten pairs and broadly oblong. From a note in the Hookerian Herbarium it appears that the latter species was in cultivation in England about half a century ago, in the once famous garden of Mr. Barclay, of Bury Hill.

C. Ellisiana was discovered in Madagascar by the eminent missionary, traveller, and author, the Rev. W. Ellis, who gave dried specimens to the Herbarium of the Royal Gardens in 1870. The specimen here figured was kindly communicated by Mr. Day, of Tottenham; it flowered as a small bushy pot plant in December, 1882.

DESCR. Apparently a small slender perfectly glabrous bush, branches woody. *Leaves* alternate, four to six inches long, pinnate with an odd leaflet; petiole very short, swollen at the base; rachis slender, slightly flexuous,

terete; leaflets distant, alternate, spreading, very shortly petiolulate, three to four inches long, by one to one and a half broad, elliptic-oblong or lanceolate, obtusely acuminate, base acute, rather hard, shining, midrib stout; nerves very slender, finely reticulated; stipellæ none; stipules minute. *Flowers* one and a half inches long, in axillary few-flowered short and shortly peduncled racemes, nodding or pendulous; pedicels one-half to one inch long, very slender. *Calyx* campanulate, pale green, terete, shortly five-lobed; base acute; lobes broadly ovate, acute, erect. *Petals* twice as long as the calyx, obovate-spathulate, convolute, forming a campanulate corolla, rose-red; tips broad, almost truncate. *Stamens* subequal, filaments slender; anthers included, ellipsoid, yellow. *Pod* (young) three inches long, oblanceolate, falcate, narrowed into a very slender stalk, tip suddenly and obliquely contracted into a slender subulate style.—*J. D. H.*

Fig. 1 and 2, anthers; 3, calyx and young pod; 4, young seed:—***all enlarged.***

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London

TAB. 6686.

DÆDALACANTHUS MACROPHYLLUS.

Native of Burma.

Nat. Ord. ACANTHACEÆ.—Tribe RUELLIEÆ.

Genus DÆDALACANTHUS, *T. Anders.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1082.)

DÆDALACANTHUS *macrophyllus*; strictus, erectus, minute pubescens, foliis elliptico-lanceolatis -ovatisve obscure subserrulatis v. integerrimis acuminatis basi longe productis, spicis paniculatis strictis elongatis continuis v. interruptis, bracteis laxe imbricatis appressis ovatis obovatisve grosse venosis obtusis subacutis v. mucronatis integerrimis glanduloso-pubescentibus, calyce minuto ad medium 5-fido lobis lanceolatis acuminatis, corollæ violaceæ tubo gracillimo bracteis multo longiore, fauce brevi modice ampliato, lobis oblongis obtusis.

D. macrophyllus, *T. Anders. in Journ. Linn. Soc. Bot.* vol. ix. p. 487.

ERANTHEMUM macrophyllum, *Wall. Cat.* 7179; *Nees in Wall. Pl. As. Rar.* vol. iii. p. 106, *et in DC. Prodr.* vol. xi. p. 446.

A tall herb, native of the drier forests of the upper part of the Malay Peninsula, extending northward from Moulmein in Tenasserim to Pegu, and eastward into Burma, flowering in the dry season. It belongs to a class of Acanthaceous plants that are very suitable for winter decoration, flowering freely under proper treatment, which consists very much in careful watering at the time when in their native country little or no rain falls. Several species are in cultivation under the names of *Eranthemum* and *Justicia*, as *D. nervosus*, Plate 1358, and *D. strictus*, Plate 3068.

D. macrophyllus has been long cultivated at Kew, having been introduced, no doubt, from the Calcutta Botanical Garden; it has flowered freely in the Palm House and elsewhere during the winter months.

DESCR. Erect, two to three feet high, sparingly branched, more or less puberulous with appressed scattered very small hairs on both surfaces of the leaves, and with spreading short glandular hairs on the stem branches above bracts and inflorescence generally. *Leaves* petioled, lower five to

nine inches long, elliptic-lanceolate, acuminate, base of the blade decurrent on the petiole, margin sometimes obscurely serrulate or denticulate. *Spikes* long-peduncled, strict, erect, three to eight inches long, narrow, glandular-puberulous; bracts loosely imbricating, one-half to three-fourths of an inch long, appressed, ovate or obovate, tip rounded acute or mucronate, green, strongly veined; bracteoles narrowly lanceolate equalling or rather longer than the calyx. *Calyx* minute, about one-tenth of an inch long, cleft to the middle into five lanceolate erect glandular-pubescent lobes. *Corolla* one and a quarter to one and a half inches long, erect, pale violet-blue; tube very slender, curved; throat short, moderately inflated; limb reflexed, about three-quarters of an inch in diameter; lobes oblong, obtuse, with darker violet veins. *Filaments* about as long as the corolla-lobes. *Ovary* slender, glandular-pubescent. —*J. D. H.*

Fig. 1, Bract, bracteoles, and calyx; 2, portion of corolla and stamens; 3, stigma; 4, ovary:—*all enlarged.*

M.S del, J.N. Fitch lith

Vincent Brooks Day & Son Imp

TAB. 6687.

GREVILLEA ANNULIFERA.

Native of Western Australia.

Nat. Ord. PROTEACEÆ.—Tribe GREVILLEÆ.

Genus GREVILLEA, *Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 180.)

GREVILLEA (Cycladenia) *annulifera*; frutex glaberrimus, foliis pinnatis, segmentis 5–11 remotis divaricatis anguste linearibus rigidis pungentibus marginibus revolutis subtus 2-sulcatis, racemis laxe multifloris breviter pedunculatis solitariis paniculatisve, floribus gracile breviter pedicellatis flavis, perianthio brevi glaberrimo intus basi subvilloso segmentis angustis revolutis apicibus dilatatis, toro pulvinari, ovario longe stipitato glaberrimo, stylo longissimo, stigmate disciforme laterali.

G. annulifera, *F. Muell. Fragment.* vol. iv. p. 85; *Benth. Fl. Austral.* vol. v. p. 460.

A rigid wiry-leaved shrub, characteristic of the scrubby vegetation of many parts of Australia. It belongs to a small section of the large genus *Grevillea*, which numbers upwards of one hundred and sixty species (almost without exception natives of that continent), in which the racemes are usually panicled and the flowers are not unilateral on the rachis. Two species only belong to it, the present and *G. leucopteris*, with tomentose branches and segments of the leaves four to ten inches long; both are natives of the Murchison River, on the west coast of Australia, a subtropical region.

G. annulifera was raised from seed sent by Baron Mueller in 1880, and flowered in the Royal Gardens in July of last year.

DESCR. A shrub six to eight feet high, everywhere glabrous or nearly so, and somewhat glaucous; branches stiff, terete. *Leaves* spreading and recurved, three to five inches long, pinnate; segments an inch long, distant, rigid, spreading, linear-subulate, pungent, dark green above, glaucous beneath with a strong midrib; petiole one-half to one inch long. *Racemes* three to four inches long, shortly peduncled, panicled at the end of the branches, subcylindric,

MAY 1ST, 1883.

lax-flowered, rachis pale green. *Flowers* sulphur-yellow, shortly pedicelled, arranged all round the rachis. *Perianth* very short, one-third of an inch long; limb strongly revolute; lobes minutely puberulous, linear with a dilated ovate obtuse antheriferous tip; tube villous at the base within. *Torus* cushion-shaped. *Ovary* gibbous, stipitate. *Style* upwards of an inch long, curved, very stout, with an oblique disciform stigma.—*J. D. H.*

Fig. 1, Flower; 2, segment of perianth; 3, top of style and stigma; 4, torus and ovary:—***all enlarged.***

A.B. del. J.N.Fitch lith

Vincent Brooks Day & Son Imp

L. Reeve & Co. London

TAB. 6688.

SAXIFRAGA LINGULATA *var.* cochlearis.

Native of the Maritime Alps.

Nat. Ord. SAXIFRAGACEÆ.—Tribe SAXIFRAGEÆ.

Genus SAXIFRAGA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 635.)

SAXIFRAGA *lingulata*; caudicibus cæspitosis crassis foliorum vestigiis vestitis, ramis brevibus foliosis glabris v. tenuiter glanduliferis, foliis rosulatis linearibus v. obovato-spathulatis acutis obtusis v. linearibus apicibus rotundatis integerrimis v. crenulatis calcareo-crustatis, caulinis paucis linearibus, caulibus gracilibus, floribus corymboso-paniculatis gracile pedicellatis, calycis glabri lobis ovatis v. oblongis obtusis marginibus membranaceo-ciliolatis, petalis obovatis albis sepalis multoties longioribus.

VAR. *cochlearis*; minor, rubro- v. purpureo-glandulosa, panicula thyrsoidea, foliis basilaribus linearibus apice in laminam rotundatam v. late spathulatam dilatatis.

S. lingulata var. cochlearis, *Engler Monog. Gatt. Saxifrag.* p. 237.

S. cochlearis, *Reichb. Fl. Germ. Excurs.* p. 559; *Bertol. Fl. Ital.* vol. iv. p. 456; *Ardoino Fl. Alp. Marit.* p. 149.

Saxifraga lingulata is a widely-distributed plant of the Mediterranean region, varying much and assuming considerably different forms in the regions it inhabits. The Apennines seem to be the centre of its geographical range, from whence it extends to Sicily in one direction, and westward along the Maritime Alps to Provence in the other. The var. *cochlearis* is a small state of the plant, confined, as far as is known, to the alpine regions of the mountains north of Nice and Mentone, from the Col de Tenda to Mount Mularè.

The specimen here figured was communicated by Mr. Jas. Atkins, of Painswick, who flowered this rare plant in June of last year, and who communicated two sub-varieties; a smaller with the leaves only one-half an inch, figured on the right-hand side of the Plate; the other, the principal figure, having leaves three-quarters to one inch long.

MAY 1ST, 1883.

Descr. Densely tufted; rootstocks short, much branched, clothed below with withered remains of old leaves. *Leaves* densely rosulate, spreading, one-half to one inch long, linear with a dilated rounded or spathulate tip, thickly coriaceous, glaucous blue with cartilaginous margins, edged with a crust of lime, quite glabrous or the young slightly hairy. *Flowering-stems* from the centre of the rosettes of leaves, five to seven inches high, very slender, bright red-brown, as are the branches, peduncles, and pedicels of the thyrsoid or subcorymbose erect open panicle; bracts and leaves on the flower-stem small, erect, linear, red-brown. *Flowers* one-half to three-quarters of an inch in diameter. *Calyx* red-brown, tube hemispheric; lobes small, ovate, obtuse. *Petals* spreading, obovate, tip rounded, pure white. *Filaments* short; anthers small. *Styles* short, recurved.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, stamen; 3, style; 4, transverse section of ovary:—*all enlarged.*

M.S. del, J.N.Fitch lith

Vincent Brooks Day & Son Imp

L Reeve & Co. London

Tab. 6689.

UTRICULARIA BIFIDA.

Native of India and China.

Nat. Ord. Lentibularineæ.

Genus Utricularia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 987.)

Utricularia *bifida*; erecta, dense cæspitosa, glaberrima, foliis scapo multo brevioribus filiformibus obtusis viridibus, surculis repentibus vesiculiferis, scapis rigidis 2–5-pollicaribus remotifloris, pedicellis brevibus marginatis fructiferis decurvis, bracteis minutis, floribus breviter pedicellatis aureis, sepalo superiore late oblongo concavo obtuso, inferiore obovato, corollæ labio superiore parvo rotundato, inferiore brevi 2-lobo, palato magno turgido, calcare $\frac{1}{4}$ poll. longo lente curvo v. fere recto, sepalis fructiferis late elliptico-ovatis, seminibus obovoideis testa laxa scrobiculata.

U. bifida, *Linn. Herb.*; *A. DC. Prodr.* vol. viii. p. 21; *Oliv. in Journ. Linn. Soc.* vol. iii. p. 182, *Excl. Syn. U. humilis.*

U. biflora, *Wall. Cat.* 1498, *non Roxb.*

U. diantha, *A. DC. l. c.* p. 21, *Excl. Syn.*

U. Wallichiana, *Benj. in Bot. Zeit.* 1845, p. 213, *non Wight.*

U. brevicaulis, *Benj. in Linnæa*, vol. xx. p. 303.

U. antirrhinoides, *Wall. Cat.* 1498 *b.*

A very singular little plant, forming, under cultivation, mossy matted tufts of leaves in a pot of sodden sandy soil, above which the wiry rigid stems with yellow flowers, something like those of a miniature *Linaria*, rise in profusion. Besides these conspicuous organs, there issue from near the base of the leaves slender transparent threads bearing the characteristic bladders of the Utricularias, which, no doubt, entrap minute aquatic animals, as do those of our English floating species of the genus. Like so many other water-loving plants, it has a very wide range, from Nepal, Assam, Chittagong (where I gathered it in company with Dr. Thomson in 1850) to Malacca, and it is also found in Ceylon, China, Japan, Borneo, and the Philippine Islands. It is very nearly allied to another Indian species, *U. Wallichiana*, which differs chiefly in having erect fruiting pedicels.

May 1st, 1883.

Seeds of *U. bifida* were received from Mr. Ford, Superintendent of the Hongkong Botanical Gardens in 1881, which germinated freely; and the plants they produced flowered abundantly in September, 1882.

Descr. Forming densely-matted masses of thread-like rhizomes giving off tufts of leaves and bearing obliquely orbicular very minute pedicelled bladders; mouth of the bladders lateral, overhung by two subulate processes depending from the upper lip. *Leaves* erect, one to two inches long, filiform, or slightly thickened upwards, one-nerved, obtuse, bright green. *Scapes* very numerous, two to five times as long as the leaves, slender, rigid, erect, simple or very sparingly branched, naked. *Flowers* distant, pedicelled, pedicels recurved in fruit. *Sepals* in flower small, upper about one-tenth of an inch long, shortly oblong, obtuse, concave, lower smaller obovate. *Corolla* bright yellow with a very large and prominent hemispheric orange-yellow palate; upper lip reflexed; lower very short, two-lobed, like two pendulous auricles from the palate; spur one-fourth to one-third of an inch long, stout, nearly straight, subacute. *Fruiting-sepals* one-fourth of an inch long, broadly ovate, acute or obtuse, enclosing the shortly oblong capsule. *Seeds* very numerous, obovoid, testa lax closely fitted.—*J. D. H.*

Figs. 1, 5, and 6, Bladders; 2, ovary; 3, stamens; 4, flower; 7, fruiting calyx and pedicel; 8, capsule; 9, placenta and seeds:—*all enlarged.*

6690

M. Cadel J. N. Fitch Lith.

Vincent Brooks Day & Son Imp.

TAB. 6690.

SPIRANTHES EUPHLEBIA.

Native of Brazil.

Nat. Ord. ORCHIDEÆ.—Tribe NEOTTIEÆ.

Genus SPIRANTHES, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 596.)

SPIRANTHES (Stenorhynchus) *euphlebia*; caule robusto superne cum inflorescentia pubescentibus, foliis rosulatis lineari-oblongis subacutis undulatis, vaginis elongatis acuminatis superioribus bracteiformibus, bracteis elongato-lanceolatis, racemo brevi densifloro, sepalis ovato-lanceolatis longe acuminatis infra medium cum ovario in tubum villosum connatis petalisque dimidiato-lanceolatis paullo brevioribus albis brunneo pulcherrime venosis, labello petalis multo minore, ungue gracili elongato, lamina lanceolato-panduriformi acuminata.

S. euphlebia, *Reichb. f. in Flora*, 1883, p. 16.

A singular plant, belonging to a section of the genus *Spiranthes* in which the perianth is decurrent on the ovary; a tendency to which structure may be seen in *S. aphylla* (Plate 2797), and *S. speciosa* (Plate 1374), and *S. orchioides* (Plate 1036); whilst in *S. grandiflora* (Plate 2730) it is carried to as great an extent as in *S. euphlebia*.

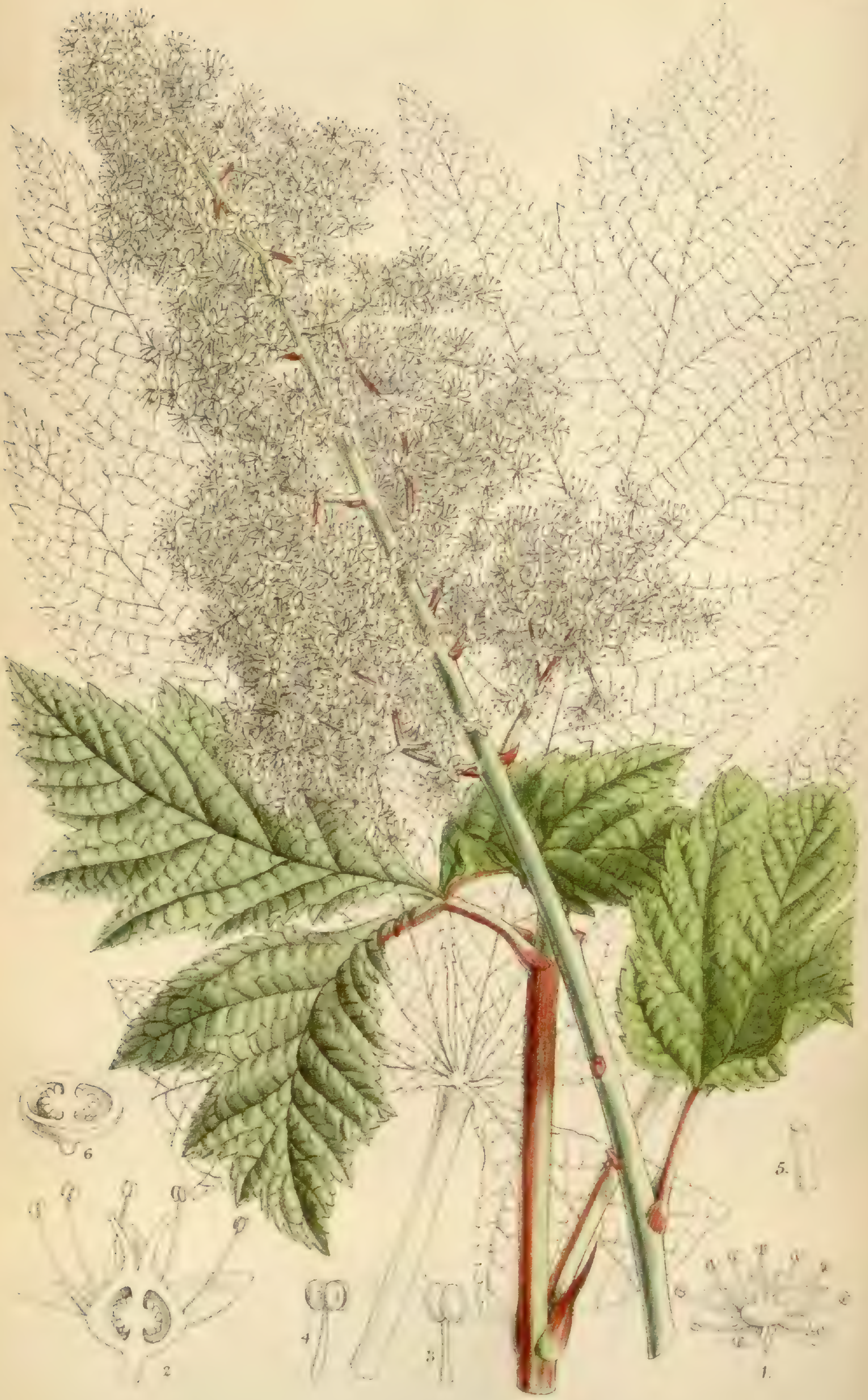
This plant was received from Messrs. Shuttleworth, Carden, and Co., who imported it from Brazil with *S. speciosa*, and it flowered in the Royal Gardens in November of last year.

DESCR. Stout, erect, twelve to eighteen inches high. *Leaves* all radical, five to six inches long, by one and a half to two inches broad, linear- or obovate-oblong, contracted into a very short broad petiole, acute, rather fleshy, glabrous, undulate, pale green with distant white blotches. *Scape* light greenish-brown, glabrous below, above pubescent; sheaths numerous, erect, dark brown, lower amplexicaul with lanceolate acuminate tips; upper narrower, semi-amplexicaul, lanceolate, passing into the bracts. *Racemes* two to three inches long and nearly as broad. *Flowers* not numerous, but crowded, horizontal, very shortly pedicelled; bracts nearly as long as the perianth-tube, lanceolate, erect,

MAY 1ST, 1883.

dark brown. *Perianth* pubescent externally, white with red-brown veins on the free portions of the sepals and petals. *Sepals* united into a tube half an inch long, with a gibbosity at the base on the anterior face; free portions spreading, lanceolate, finely acuminate. *Petals* inserted at the mouth of the calycine tube, semi-lanceolate, acuminate, erect; forming with the posterior sepal an ovate shallow erect hood. *Lip* very small, inserted at the very base of the calyx-tube; claw long, concealed in the tube; limb very small, recurved, lanceolate and contracted at the middle on each side, veined like the sepals and petals.—*J. D. H.*

Fig. 1, Flower; 2, calyx tube, column, and lip (very inaccurately represented); 3, column showing the stigma; 4, anther; 5 and 6, pollen masses:—*all magnified.*



A.B del. J.N.Fitch.Lith

Vincent Brooks Day & Son Imp

L.Reeve & Co. London.

Tab. 6691.

RODGERSIA PODOPHYLLA.

Native of Japan.

Nat. Ord. Saxifragaceæ.—Tribe Saxifrageæ.

Genus Rodgersia, *A. Gray*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 635.)

Rodgersia *podophylla*; rhizomate crasso, caule simplici, foliis radicalibus maximis longe petiolatis palmatim v. pedatim 5-foliolatis, foliolis cuneato-vel deltoideo-obovatis acuminatis integris v. 3-fidis argute serratis, stipulis membranaceis petiolo adnatis, foliis caulinis brevius petiolatis 3–5-sectis, panicula ampla nuda ramosa, floribus parvis luteo-albis in cymas scorpioideas puberulas dispositis.

R. podophylla, *A. Gray in Mem. Amer. Acad. Ser.* 2, vol. vi. p. 389; *Miquel, Prolus, Fl. Jap.* p. 260; *Regel Gartenfl.* vol. xx. p. 355, t. 708 (*R. japonica*); *Franch. et Sav. Fl. Jap.* vol. i. p. 144. *So Mokou*, vol. viii. t. 27.

Though so dissimilar in habit, *Rodgersia* is nearly allied to *Saxifraga*, being placed between that genus and *Astilbe*, from which latter it differs chiefly in the connate carpels and the scorpioid inflorescence. On the other hand, in the stout rhizome and large radical leaves it recalls the noble *Saxifraga peltata* (Plate 6074) of California. The specimen here figured is a small one; for the leaves attain upwards of a foot and a half in diameter, and the individual segments ten inches in length and eight in breadth; whilst the panicle in dried specimens preserved in the Herbarium at Kew are ten inches long and broad; under cultivation, no doubt, larger dimensions will be attained.

The genus *Rodgersia* was named after Commodore Rodgers, of the United States Navy, the Commander of a squadron that explored the shores of Japan. In the words of the author of the genus, the latter is dedicated to him "in acknowledgment of the enlightened and generous interest which he took in the naturalists of his squadron, and of his constant care to facilitate their explorations. And the name is more appropriately conferred upon the present very striking plant, since Captain Rodgers was himself one of its discoverers."

May 1st, 1883.

R. podophylla, the only known species of the genus, inhabits open subalpine mossy woods in Japan, at Yesso, Hakodadi, and on Fudsi-Yama, flowering in June. It was introduced into the Imperial Botanical Garden of St. Petersburg by Dr. Maximovicz, where it flowered in 1871. Our specimen is from a plant flowered by Messrs. Veitch in June of last year, which was raised from seed sent by their most successful collector, Mr. Maries.

Descr. A herb with a stout perennial rootstock. *Radical leaves* few, long petioled, peltately five-foliolate, six to eighteen inches in diameter; leaflets sessile, five to ten inches long by three to six in breadth, cuneately obovate or almost deltoid to beyond the middle, then trifid, with acuminate lobes or suddenly contracted and acute, the lateral sometimes irregularly lobulate, margin coarsely serrate, rather membranous, rugose from the numerous venules, glabrous above, glabrous or pubescent on the nerves beneath; petiole six to twelve inches long, stout, with a few paleaceous hairs at the summit; stipules adnate to the base of the petiole; cauline leaves few, smaller, shorter-petioled, three to five foliolate. *Flowering stems*, two to three feet high, bearing a terminal much-branched matted panicle six to twelve inches high and broad, of scorpioid pubescent cymes. *Flowers* one-third of an inch in diameter, shortly pedicelled, yellowish white. *Calyx-tube* very short, lobes spreading, ovate, acute. *Petals* none. *Stamens* twice as long as the calyx; anthers very small. *Ovary* depressed, globose, with two suberect styles. *Capsules* very small.—*J. D. H.*

Fig. 1, Flower; 2, vertical section of ditto; 3 and 4, stamens; 5, top of style and stigma; 6, transverse section of ovary:—*all enlarged.*

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

TAB. 6692.

BOMAREA PATACOCENSIS.

Native of Ecuador.

Nat. Ord. AMARYLLIDEÆ.—Tribe ALSTRŒMERIEÆ.

Genus BOMAREA, *Mirb.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 736.)

BOMAREA *patacocensis*; caule tereti bracteis pedicellisque pubescentibus, foliis lanceolatis acuminatis superne glabris subtus puberulis, petiolo brevi torto, bracteis lineari-oblongis obtusis v. acutis pedicellis brevioribus, floribus numerosissimis subumbellatis confertissimis, pedicellis gracilibus 2–2½ pollicaribus, floribus 2½-pollicaribus coccineis, perianthii regularis segmentis exterioribus lineari-oblongis obtusis, exterioribus longioribus spathulatis.

B. patacocensis, *Herbert, Amaryllid.* p. 120, t. 14; *Kunth. Enum. Pl.* vol. v. p. 814.

B. conferta, *Benth. Plant. Hartweg.* p. 259; *Walp. Ann.* vol. i. p. 837; *Masters in Gard. Chron.* 1881, p. 330, *and* 1882, p. 186, f. 31.

This noble plant was discovered by the late Colonel Hall in Ecuador at a place called Patacocha, alt. 6000 feet, which I do not find on any map accessible to me; and was described by the late Dean Herbert in his classical work on the Amaryllideæ, published in 1837. It was subsequently collected by Hartweg in the Western flanks of Pichincha, and published by Bentham, who could not have seen Hall's specimen, as *B. conferta*. It is probably a common plant in the Quitenian Andes, for Jameson, in his Herbarium of Ecuador plants, states that it grows in various wooded localities of the temperate region of the Andes, at an elevation of 8000 feet. From *B. pardina*, Herb., with which Bentham compares it, it differs in the much narrower leaves, longer pedicels, and larger bracts. The plant alluded to by Baker in the "London Journal of Botany" (1882, p. 205), under *B. conferta*, from the Andes of Quito, collected by M. André, and which has orange-coloured outer perianth segments and yellow inner ones spotted with dark violet, can hardly be this species.

B. patacocensis flowered in the Royal Gardens in October

JUNE 1ST, 1883.

of last year, in the cool end of the Succulent House, from a plant presented by Messrs. Shuttleworth, Carder, and Co.

Descr. A tall climber. *Stem* purplish-brown, rather stout, pubescent. *Leaves* four to six inches long, lanceolate, acuminate, dark green, glabrous above, pubescent beneath; petiole very short, flattened, twisted. *Flowers* very shortly racemose on a terminal rachis, very numerous and densely clustered, pendulous, scarlet, except the green ovaries. *Bracts* many or few, whorled, two to three inches long, linear-oblong, acute or obtuse, pubescent on both surfaces. *Pedicels* two to two and a half inches long, very slender, pubescent. *Perianth* as long as the pedicels, very narrowly campanulate; outer segments linear-oblong, obtuse, with a brown spot below the tip on the back; inner one-third longer than the outer, elongate-spathulate, obtuse or subacute. *Stamens* as long as the perianth; anthers blue. *Ovary* turbinate, five-grooved. *Style* straight, stigma simple.—*J. D. H.*

Fig. 1 and 2, Anthers; 3, ovary; 4, stigma:—*all enlarged.*

M.S. del, J.N. Fitch lith

Vincent Brooks Day & Son Imp

Tab. 6693.

ANGRÆCUM MODESTUM.

Native of Madagascar.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Angræcum, *Thou.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 583.)

Angræcum *modestum;* caule brevi, foliis 4–5-pollicaribus elliptico- v. linear-oblongis subacutis, racemo pendulo 6–10-pollicari, pedunculo 3–6-pollicari modice robusto vaginis brevibus crebris appressis cum rachi pedicellisque pollicaribus pallide brunneis, bracteis brevissimis, floribus candidis 1–1½-poll. diam., sepalis petalisque consimilibus patenti-recurvis oblongo-lanceolatis acutis, labello petalis paullo longiore et latiore recurvo, calcare gracillimo pedicello duplo longiore, columna brevi obscure pilosa, polliniarum stipite solitario gracili glandula squamiformi 2-loba.

The nearest ally of this is no doubt the *A. apiculatum* (Plate 4159) of Sierra Leone, which differs in the acuminate petals and sepals tipped with pink, the green rachis and peduncle of the raceme, and the clavate stipes of the pollen-masses; there is also a tendency in the leaves of *A. apiculatum* to become two-lobed, of which I see no traces in this. *A. bilobum*, Lindl. (Bot. Reg. vol. xxvii. t. 35), is another closely allied plant, a native of Cape Coast Castle, in Western Tropical Africa; it differs in the strongly veined two-lobed leaves, and acuminate sepals and petals; it is possibly the same as *A. apiculatum.* In the hairy column, a character probably overlooked in other species, it resembles *A. descendens*, Reichb. f. (in Gard. Chron. 1882, p. 558).

Angræcum modestum is a native of Madagascar, and the plant here figured was presented to the Royal Gardens by the Dowager Lady Ashburton; it flowered in April of the present year.

Descr. *Stem* very short. *Leaves* distichous, three to six inches long by one to one and a half inches broad, elliptic- or linear-oblong, acute, tip entire, pale bright-green, coriaceous, nerveless. *Raceme* pendulous, longer than the leaves, many-flowered; peduncle three to six inches long,

June 1st, 1883.

rather stout, clothed with numerous very short appressed sheaths, pale brown, as are the rachis and pedicels; rachis subangularly flexuous; bracts very small, broad, appressed, brown; pedicels slender, one inch long. *Flowers* pure white, one to one and a half inches in diameter. *Sepals* and *petals* oblong-lanceolate, acute, spreading and recurved, the petals rather the broadest; lip rather larger than the petals, also oblong-lanceolate, acute, recurved; spur very slender, straight, about twice as long as the pedicel. *Column* very small, slightly hairy; anther conical, obtuse; pedicel of the pollen-masses single, slender, with a large bilobed gland.—*J. D. H.*

Fig. 1, Side and, 2, front view of column; 3, anther; 4, pollen :—*all enlarged.*

7.

1.

5.

6.

4.

2.

3.

M S del J.N. Fitch lith

Vincent Brooks Day & Son Imp.

L Reeve & Co London.

TAB. 6694.

GERRARDANTHUS TOMENTOSUS.

Native of Natal.

Nat. Ord. CUCURBITACEÆ.—Tribe ZANONIEÆ.

Genus GERRARDANTHUS, *Harv.*; (*Cogniaux in A. DC. Monogr. Phan.* vol. iii. p. 935.)

GERRARDANTHUS *tomentosus*; ramulis foliisque novellis subtus et petiolis dense tomentosis denum glabratis v. pubescentibus, foliis ambitu reniformibus sinu basilari profundo 5–7-lobis, lobis brevibus triangularibus acutis, fl. ♂ petalis ovato-oblongis obtusis marginibus late reflexis, connectivo in calcar elongatum producto, fl. ♀ ovario tubuloso-campanulato 10-costato, staminodiis setiformibus, stylo brevissimo conico, stigmatibus sessilibus reniformibus, fructu campanulato 10-costato ore trilobo.

The singular plant here figured belongs to a very little known genus of tropical and southern subtropical African plants, of which the first described species was named after its discoverer, Gerrard, a collector in Natal, who perished in Madagascar. *G. tomentosus* differs a good deal from the generic character, but hardly sufficiently to form a new genus for its reception. Of the three described species in Cogniaux's monograph quoted above, none have the spurred anthers of this, and in the only one of them of which the female flower is known, this has three distinct styles and no staminodes. The ovules, too, which in the previously known species are pendulous from parietal placentas, in this are suspended from the top of the cells of the ovary; the seeds are, however, quite characteristic of *Gerrardanthus*.

One of the most curious features of this genus is the enormous size of its tuberous roots. Mr. Wood, now superintendent of the Natal Botanical Gardens, and who sent seeds of this plant to Kew with copious herbarium specimens, informs me that he first found it in 1874, in one stony ravine only (in Inanda), where the tubers were seated on the top of and between large stones. Of these tubers one measured six feet in circumference, and was

JUNE 1ST, 1883.

nearly two feet thick; its surface was scarred; and from the centre arose a stem not more than three-quarters of an inch in diameter, thickly covered with small round tubercles, which ascended without a leaf to the tops of trees fifty feet high. On turning over one of the tubers, it was found to have but one fibrous root, about half an inch thick. Mr. Wood adds that the natives do not appear to put the plant to any use.

The specimen here figured was raised from seeds sent by Mr. Wood in 1879, and it flowered for the first time in August, 1881.

Descr. *Stem* very tall, climbing, from a large tuberous root; branches clothed with spreading hairs; young parts and leaves beneath densely tomentose. *Leaves* three to four inches in diameter, reniform in outline, angularly five- to seven-lobed, strongly nerved beneath, dull green; lobes short, triangular, acute; basal sinus deep, rounded, with connivent sides; petiole one and a half to two and a half inches long. *Male flowers* in short racemes, bracts small. *Calyx-lobes* short, rounded, pubescent. *Corolla* rotate, one-half to three-quarters of an inch in diameter; lobes ovate-oblong, obtuse, dull yellow, margins strongly and broadly recurved. *Stamens* five, one imperfect, the others connivent in pairs; filaments incurved; anthers oblong, one-celled, with the connective produced into a spur longer than the cell. *Female flowers* solitary or binate, axillary, pubescent, shortly peduncled. *Calyx* and *petals* as in the male. *Ovary* three-quarters of an inch long, narrowly campanulate, three-celled, pubescent, ten-ribbed; style short, conical; stigmas three, shortly reniform, with the sinus uppermost; ovules few, pendulous from the summit of the cells. *Fruit* three inches long, between campanulate and clavate, ten-ribbed, coriaceous, dry, mouth broadly three-lobed above the ribs. *Seeds* one and a half inches long; nucleus oblong, compressed, margined, ending in a broad membranous wing.—*J. D. H.*

Fig. 1, Male flower; 2, stamen (both from dried specimens); 3, petal of female flower; 4, ovary, style, and stigma; 5, vertical section of ovary; 6, fruit, and 7, seed (both from dried specimens):—*all but fig.* 6 *enlarged.*

3. 2.

1

4.

6

5

M.S. del. J.N. Fitch. lith.

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London.

TAB. 6695.

CLERODENDRON MACROSIPHON.

Native of Zanzibar.

Nat. Ord. VERBENACEÆ.—Tribe VITICEÆ.

Genus CLERODENDRON, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1155.)

CLERODENDRON (Cyclonema) *macrosiphon;* ramis gracilibus foliisque puberulis, foliis petiolatis oblanceolatis v. elliptico-lanceolatis grosse inæqualiter dentatis in petiolum longe angustatis, floribus in cymam brevissimam terminalem subsessilem confertis, pedicellis brevissimis, calyce parvo dentibus ovatis acutis, corolla alba tubo 3–4-pollicari gracillimo piloso, limbi 1-poll. lati unilateralis lobis secundis ovato-oblongis subacutis, filamentis 2-pollicaribus antherisque parvis purpureis.

A very elegant shrub, one of the many discoveries of Sir John Kirk, who sent living plants of it to Kew in 1881, which flowered in May of the following year in the stove. The corolla, which is pale green in bud, becomes when expanded snowy white, relieved by the long purple threads of the filaments. Most of the species which possess a corolla-tube approaching this in length, belong to the section of the genus with a more regular limb of the corolla, as, for example, *C. hastatum*, Wall., of India (Plate 3398), of which the corolla-tube is even longer. There is, however, described in the botanical part of "Peter's Reise nach Mossambique" (p. 259) a *C. incisum*, Klotzsch, from the Sana river in East Africa, which approaches *C. macrosiphon* very closely, differing, according to the description, chiefly in the glabrous calyx and corolla. This latter has a similar corolla, and it is probable that the species in which the lobes all point one way should form a distinct section of the genus. Only one other species with this structure has been previously figured in this Magazine, namely, *C. macrophyllum*, Sims (Plate 2536).

Sir John Kirk found *C. macrosiphon* on the coast opposite Zanzibar Island, in very rocky places, where it formed a small slender shrub.

JUNE 1ST, 1883.

DESCR. A very slender erect shrub; branches and leaves finely pubescent. *Leaves* two to three inches long, by three-quarters to one and a quarter inches broad, oblanceolate or elliptic-lanceolate, acuminate, coarsely and deeply irregularly toothed or almost lobulate along the margins, base gradually narrowed into a petiole. *Flowers* forming a small subsessile terminal reduced cyme, pedicels about one-tenth of an inch long. *Calyx* campanulate, pubescent, one-fourth of an inch long, tube cylindric, teeth triangular acute erect. *Corolla* pure white, tube four to four and a half inches long by one-tenth of an inch in diameter, hairy, erect, slightly curved, hardly dilated at the very short throat; limb completely one-sided, one to one and a half inches in diameter, five-lobed to the middle; lobes oblong, subacute, converging. *Stamens* inserted on the throat of the corolla, the four anterior declinate, the posterior erect; filaments two to two and a half inches long, very slender, red-purple, as are the very small oblong anthers. *Ovary* very small, four-lobed; style very long, filiform, exserted portion as long as the stamens; stigmas two, small, filiform, recurved.—*J. D. H.*

Fig. 1, Calyx; 2 and 3, anthers; 4, stigmas; 5, transverse section of ovary:—*all enlarged.*

A.B. del, J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

Tab. 6696.

CEPHÆLIS tomentosa.

Native of Guiana.

Nat. Ord. Rubiaceæ.—Tribe Psychotrieæ.

Genus Cephælis, *Swartz;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 127.)

Cephælis (Bracteocardiæ) *tomentosa;* hirsuta, foliis breviter petiolatis ellipticis v. elliptico-lanceolatis utrinque acuminatis, nervis numerosis, stipulis utrinque 2-nis elongato-lanceolatis erectis, capitulis longe pedunculatis, pedunculis axillaribus v. terminalibus 1-cephalis, involucri bracteis 2 magnis late ovatis subacutis v. cordato-reniformibus coccineis hirsutis, bracteolis spathulatis v. oblongis hirsutis, calycis lobis brevibus, corolla tubulosa flava limbo brevissimo 5-dentato, dentibus triangularibus patulis, antheris linearibus subsessilibus dorsifixis.

C. tomentosa, *Willd. Sp. Pl.* vol. i. p. 977; *Vahl Eclog.* vol. i. p. 19; *DC. Prodr.* vol. iv. p. 533.

Callicocca tomentosa, *Gmel. Syst.* vol. i. p. 371.

Tapogomea tomentosa, *Aubl. Guian.* vol. i. p. 160, t. 61.

A very singular plant, congeneric with that yielding the medicinal Ipecacuanha, but of very different appearance, a native of tropical America, whence it extends from Mexico to Guiana on the east, and Peru on the west side of the Andes; also found in Trinidad, but in no other of the West Indian Islands. It belongs to a small group of the genus (which is reduced to *Psychotria* by many authors), to which the sectional name of *Tapogomea* has been applied by Mueller Argan in Martius' Flora of Brazil (Fasc. lxxxiv.), distinguished chiefly by the bracts; it includes five species so strikingly alike that they may prove to be varieties of one; of these two have the calyx-lobes much longer than its tube, whilst in the other two the calyx-lobes are no longer than the tube. *C. tomentosa* is one of the last group, but differs from Mueller's description in having tufts of hairs in the corolla-tube.

C. tomentosa was introduced into cultivation by Messrs. Veitch, who imported it from British Guiana, and sent the

June 1st, 1883.

specimen here figured to Kew to be named in September, 1882.

DESCR. A shrub, hirsute throughout, with long soft hairs, especially in the branches and peduncle. *Leaves* six to ten by two to four inches long, rather membranous, elliptic or elliptic-lanceolate, acuminate at both ends; nerves very numerous, eight to sixteen pairs, slender, arching; petiole one-half to one and a half inches long, stout; stipules one-half to three-quarters of an inch long, in pairs on each side of the stem, narrowly subulate-lanceolate, erect. *Peduncle* solitary, axillary or terminal, one to four inches long, stout, erect. *Bracts* two, opposite, spreading, one to one and a half inches long, one to two inches broad, broadly ovate or subreniform or orbicular-ovate, acute or acuminate, scarlet, rugose, hirsute; bracteoles irregular, short, hairy, spathulate. *Flowers* densely crowded, three-fourths of an inch long. *Calyx-lobes* short. *Corolla* twice as long as the calyx-lobes, tubular, yellow, pubescent; lobes five, very small, triangular-ovate, spreading; tube with tufts of hairs within about the middle. *Anthers* linear, subsessile near the mouth of the corolla, peltately attached. *Ovary* small, two-celled; style slender; stigmas short, linear. *Drupe* blue.—*J. D. H.*

Fig. 1, Head cut vertically, *of the natural size;* **2**, bracteole; **3**, bracteoles and flower; **4**, vertical section of flower (inaccurate as to lower part); **5**, tuft of hairs of interior of corolla-tube; **6**, anthers; **7**, transverse section of ovary:—*all enlarged.*

A.B. del. J.N. Fitch lith.

Vincent Brooks, Day & Son Imp.

Tab. 6697.

ACER insigne.

Native of Persia.

Nat. Ord. Sapindaceæ.—Tribe Acerineæ.

Genus Acer, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 409.)

Acer *insigne;* ramulis validis glaberrimis, alabastri squamis magnis lineari-oblongis rubris, foliis gracile petiolatis ambitu reniformi-rotundatis ad medium palmato-5-lobis subtus glaucis, lobis oblongis v. oblongo-lanceolatis grosse obtuse serratis, floribus in paniculas terminales pyramidatas dispositis, petalis linearibus sepala ovata vix superantibus, filamentis glaberrimis, ovario pubescente, samaris glabris v. pilosiusculis alis subdivergentibus.

A. insigne, *Boiss. et Buhse, Aufz.* p. 46; *Boiss. Fl. Orient.* vol. i. p. 947; *G. Nicholson in Gard. Chron.* 1881, vol. ii. p. 75.

A. velutinum?, *Van Volxem in Gard. Chron.* 1882, vol. i. p. 744.

The subject of this plate has been much discussed amongst botanists and arboriculturists, but its name and place have, I think, been definitely settled by Mr. G. Nicholson (of this establishment), who communicated to the "Gardener's Chronicle" a very valuable account of the cultivated Maples, including this species. The specimens were communicated by M. J. Van Volxem from his fine establishment in Belgium, and though still young it proclaims itself to be one of the handsomest species of the genus in cultivation, being conspicuous in late spring for the size and beautiful colour of the bud-scales, and tender green of its pale foliage. M. Van Volxem says of it, that it is the hardiest of the eighty species and varieties of Maples cultivated by him, having withstood the disastrous winters of 1879-80 and 1880-1; and being a late and cautious grower, it had never even been nipped by the late frosts. Our Kew experience of the plant accords with M. Van Volxem's, but Dr. Masters, whose garden is at a considerably higher level than Kew (Ealing), says that this is not his experience. At this date (May 18th) of this very exceptionally late spring, the buds are not even

swollen, and will probably not burst for some weeks yet, whilst most of the other Maples are in young leaf. According to M. Van Volxem, the earliest notice of this plant under cultivation is in Vilmorin's Catalogue of 1867, where it is said to be a native of Pontus, at an elevation of 1500 metres; M. Van Volxem's own plants were raised from seed collected by Balansa, he believes, in Lazistan. Boissier gives the mountains of North Persia (provinces of Talysch, Ghilan, and Asterabad) as the habitat of *A. insigne*; and woods of Ghilan in South Persia as that of the *var. velutina* (under which name this has been cultivated).

I am indebted to Dr. Masters for the specimen figured, which flowered in his garden on May 23rd, 1882, before the plants did at Kew in the same year, and which were also received from M. Van Volxem.

Descr. A tree. *Branchlets* rather stout, terete, dark brown; buds ovoid, stout. *Leaves* five to six inches in diameter, rounded-reniform in outline, palmately divided to the middle into five to seven oblong acute coarsely obtusely serrated lobes, glabrous above, beneath more or less tomentose. *Flowers* one-fourth of an inch in diameter, green, in terminal pyramidal panicles three to four inches long, appearing with the leaves, polygamous, the males with long slender exserted stamens, the hermaphrodite with very short stamens. *Sepals* ovate, obtuse. *Petals* hardly longer than the sepals, small, linear. *Filaments* quite glabrous; anthers small. *Ovary* hairy.—*J. D. H.*

Fig. 1, Male flower; 2, the same cut vertically; 3, female flower; 4, stamens 5, ovary; 6, young fruit; 7, diagram of floral organs:—*all enlarged.*

M. N. del. J. N. Fitch. lith.

Vincent Brooks, Day & Son Imp.

TAB. 6698.

GREVILLEA PUNICEA, *Br.*

Native of New South Wales.

Nat. Ord. PROTEACEÆ.—Tribe GREVILLEÆ.

Genus GREVILLEA, *Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 180.)

GREVILLEA (Lissostylis) *punicea;* ramulis gracilibus foliisque subtus et inflorescentia sericeis, foliis subsessilibus elliptico-lanceolatis acutis v. obtusis et apiculatis costa subtus prominula, floribus ad apicem pedunculi cernuis subumbellatim capitatis, pedicellis brevibus, perianthii coccinei tubo angusto sulcato intus tomentoso, limbi lobis tubo brevioribus lineari-oblongis revolutis, toro recto, ovario glaberrimo gracili stipitato, stylo elongato puberulo, stigmate discoideo.

G. punicea, *Br. in Trans. Linn. Soc.* vol. x. p. 169, *et Prodr. Fl. Nov. Holl.* p. 376; *Meissn. in DC. Prodr.* vol. xiv. p. 354; *Benth. Fl. Austral.* vol. v. p. 468; *Bot. Reg.* t. 1319; *Lodd. Bot. Cab.* t. 1357; *Reichb. Icon. Exot.* t. 105.

LYSANTHE speciosa, *Knight, Prot.* p. 118.

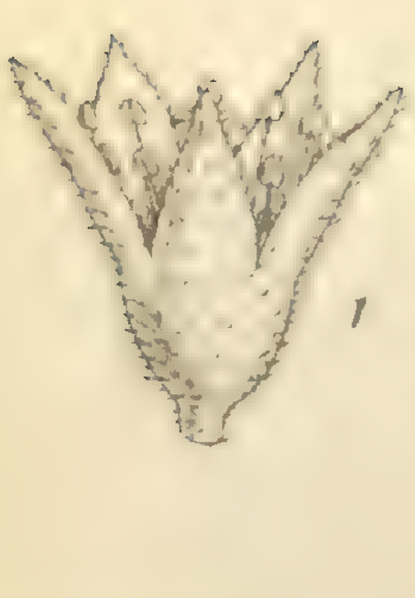
As is the case with so many beautiful Australian plants, this, which was introduced so long ago as 1825, has long since been out of cultivation, having shared the fate of the "hard-wooded" class of greenhouse and conservatory shrubs which require a rather special treatment. It is a native of Port Jackson itself, and extends thence westwards to the Blue Mountains. Its nearest ally is *G. sericea*, Br., to which *G. dubia*, Br. (Plate 3798), is referred, and it may prove to be only a brilliantly coloured variety of that plant with larger flowers and longer styles, the geographical area inhabited by them being the same.

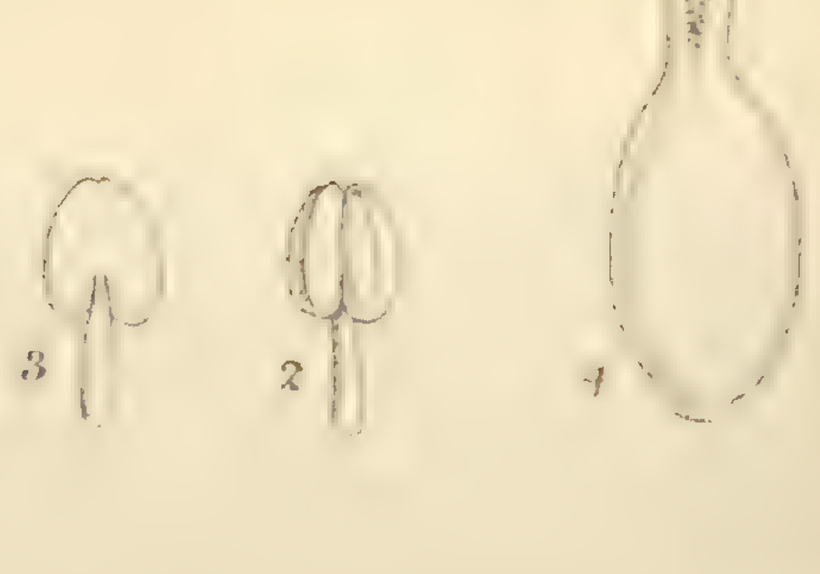
The seeds from which the specimens here figured were raised were received by Dr. Schomburgk, of the Adelaide Botanical Garden, in 1880, and the plant flowered in March of this year in the Temperate House of the Royal Gardens.

DESCR. A shrub; branches slender, together with the leaves beneath and inflorescence clothed with a fine silky pubescence of appressed hairs attached by the middle. *Leaves* alternate, one to two and a half inches long, by one-third to two-thirds of an inch broad, oblong or elliptic-

lanceolate, rarely oblanceolate, obtuse or subacute, with usually an apiculus, smooth and shining above, midrib strong beneath, nerves very obscure, when dry rusty brown beneath with recurved margins; petiole very short. *Peduncles* terminal, slender, one-fourth to one-half of an inch long, curved, bearing a much shortened umbelliform raceme of brilliant scarlet flowers; pedicels one-sixth to one-fourth of an inch long. *Perianth* tubular, tube one-half of an inch long, grooved, villous within; lobes half the length of the tube, oblong, obtuse, revolute, glabrous within. *Anthers* small, sessile. *Disk* small, annular. *Ovary* slender, stipitate; style very stout, two to three times as long as the perianth tube, slightly curved, scarlet; stigma oblique, discoid.—*J. D. H.*

Fig. 1, Flower; 2, portion of perianth seen from within; 3, apex of lobe of ditto with anther; 4, pistil; 5, hair:—*all enlarged.*





M.S. del. J.N. Fitch, lith.

Vincent Brooks, Day & Son Imp.

Tab. 6699.

GYPSOPHILA cerastioides.

Native of the Himalaya.

Nat. Ord. Caryophylleæ.—Tribe Sileneæ.

Genus Gypsophila, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 146.)

Gypsophila (Heterochroa) *cerastioides;* perennis, tota cano-tomentosa, rhizomate lignoso, ramis diffusis prostratis et ascendentibus foliosis, foliis obovatis spathulatisque obtusis in petiolum angustatis utrinque pubescentibus enerviis, cymis subcapitatis sessilibus v. breviter pedunculatis foliaceo-bracteatis, rarius nudis evolutis et corymboso-paniculatis, calycis semiquinquefidi lobis oblongis subacutis ciliatis, petalis calyce duplo longioribus obcordato-spathulatis 3-nerviis, stylis 2–3, seminibus latis atris tuberculatis.

G. cerastioides, *Don Prodr. Fl. Nep.* p. 213; *Hook. f. Fl. Brit. Ind.* vol. i. p. 217.

Acosmia rupestris, *Benth. in Wall. Cat.* n. 644; *Cambess. in Jacquem. Voy. Bot.* p. 26, t. 28.

Timæosia rupestris, *Klotzsch in Bot. Reis. Pr. Waldem.* p. 138, t. 33.

This belongs to a small section of the large genus *Gypsophila*, established by Bunge for the reception of a few Asiatic species, characterized chiefly by the hairyness, the leafy cymes, and campanulate five-fid calyx, and which he regarded as of generic value. Other characters attributed to *Heterochroa* by its author are either variable or inconstant as to their presence, as a slight irregularity of the corolla, polygamous inflorescence, a scarious calyx, and the coloured petals which suggested the name.

G. cerastioides is a very common Himalayan plant, extending from Kashmir to Sikkim, at elevations between 6000 and 12,000 feet. The flowers vary a good deal in size, and in colour from white to lilac, always with three red or purplish veins. The specimen figured was from the Joad collection, which flowered at Kew in May of last year. There are also plants at Kew raised from seeds sent from the Royal Botanical Garden, Calcutta, by Dr. King, collected in Sikkim. The plant is a very free flowerer, and well adapted for the rock garden.

July 1st, 1883.

Descr. A low densely pubescent herb, clothed with spreading soft hairs. *Rootstock* short, woody, with a fusiform woody root. *Branches* numerous from the crown of the rootstock, three to eight inches long, decumbent at the base, then prostrate or suberect, leafy, simple or dichotomously branched. *Leaves* pubescent on both surfaces, radical long-petioled, one to one and a half inches long, spathulate or oblanceolate; cauline one-third to two-thirds of an inch long, obovate or spathulate, obtuse or rounded at the apex, narrowed into a short petiole, nerves very obscure. *Cymes* terminal, usually sessile between the uppermost pair of leaves, rarely peduncled and evolute, becoming panicled or corymbose; pedicels usually very short, longer in the evolute cymes. *Flowers* erect, one-third to nearly two-thirds of an inch in diameter. *Calyx* campanulate, five-cleft to the middle; lobes oblong ovate, subacute, ciliate. *Petals* twice as long as the calyx, obovate-spathulate, white or lilac with three pink veins. *Stamens* shorter than the calyx; anthers small. *Styles* two in our specimens (three are figured by Klotzsch). *Capsule* oblong, rather longer than the calyx. *Seeds* broad, flat, black.—*J. D. H.*

Fig. 1, Calyx and stamens; 2, and 3, stamens; 4, pistil:—*all enlarged.*

1

2

M.S.del, J.N.Fitch lith.

Vincent Brooks, Day & Son Imp.

L Reeve & Co London.

Tab. 6700.

TORENIA FLAVA.

Native of Cochin China and India.

Nat. Ord. Scrophularineæ.—Tribe Gratioleæ.

Genus Torenia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 954.)

Torenia *flava*; caulibus suberectis v. prostratis elongatis glabris nodis inferioribus radicantibus, foliis petiolatis ovatis grosse crenatis glabris v. parce puberulis, floribus axillaribus solitariis et in racemos terminales dispositis, pedicellis calyce brevioribus, calyce oblongo plicato angulis non alatis, corollæ tubo exserto superne et intus purpureo limbi aurei lobis rotundatis, filamentis longioribus basi unidentatis.

T. flava, *Ham. in Wall. Cat.* 3957, A, B; *Benth. Scroph. Ind.* p. 38, *et in DC Prodr.* vol. x. p. 411.

T. Bailloni, *Godefroy in Ill. Horticole*, vol. xxv. (1878), t. 324; *E. Morren in Belgique Horticole*, vol. xxix. (1879), pp. 22 *et* 29, t. 1, f. 2; *Floral Magazine*, 1878, t. 331.

Peristeira racemosa, *Griff. Notul.* vol. iv. p. 120.

The species of the beautiful genus *Torenia* are very difficult of discrimination, being variable in habit and in the size of the flower. In the first published plate of this plant (in the "Illustration Horticole"), it is represented as suberect, with the flowers all towards the ends of the branches, and hence, through the reduction of the floral leaves, subracemose; thus precisely according in habit and inflorescence with native specimens from India and Eastern Asia. In the "Belgique Horticole" there is a good figure of it (vol. xxix. t. 1), which represents the plant as erect, but with axillary flowers; and, lastly, in the "Revue Horticole" (1879, p. 69) an excellent wood-cut represents it as with pendent branches and solitary axillary flowers, which accords with the habit of the plant as grown at Kew.

T. flava was discovered in Assam by Buchanan Hamilton three-quarters of a century ago, and has since been found to extend southward to Tenesserim, and eastward to Siam and China. It was introduced into cultivation by M. Linden,

July 1st, 1883.

who received the seeds from M. Godefroy in Cochin China in 1876, and it is now a common stove plant, flowering in summer and autumn.

Descr. Branched from the base, glabrous or sparsely hairy. *Stems* and *branches* erect, from a decumbent rooting base, or prostrate, or pendulous, acutely four-angled, one to one and a half inches long. *Leaves* one to nearly two inches long, petioled, ovate or oblong, acute or obtuse, coarsely crenate; petiole half as long as the blade or shorter. *Flowers* axillary and solitary, or subracemose at the ends of the branches, in distant pairs on an erect rachis with small bracts or floral leaves; pedicels usually shorter than the calyx, thickened in fruit. *Calyx* one-half to three-fourths of an inch long, narrowly oblong, tube with five deep furrows and acute ribs or keels; lobes short, subulate. *Corolla* variable in length, tube sometimes twice as long as the calyx, rather broad, red-purple above, dirty yellow beneath; limb one inch in diameter and less, bright golden yellow, with a purple eye. Longer *filaments* with a tooth at the base.—*J. D. H.*

Fig. 1, Corolla laid open; 2, ovary and disk:—*both enlarged.*

M.S. del. et lith.

Vincent Brooks Day & Son Imp.

Tab. 6701.

ERANTHEMUM BORNEENSE.

Native of Borneo.

Nat. Ord. Acanthaceæ.—Tribe Justicieæ.

Genus Eranthemum, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1097.)

Eranthemum *borneense*; ramulis glabris, foliis breviter crasse petiolatis ovato-oblongis acuminatis basi acutis v. rotundatis coriaceis costa crassa nervis utrinque 8–10, spica simplici densiflora, rachi stricta et calycibus puberulis, floribus albis non secundis confertis, calyce $\frac{1}{3}$ poll. longo segmentis subulatis, corollæ tubo pollicari pubescente fauce non ampliata, limbi vix bilabiati $1\frac{1}{2}$-poll. diam., laciniis elliptico-oblongis obtusis inferiore majore, antheris purpureis, staminibus abortivis ad basin fertilium minutis, ovario glaberrimo.

This belongs to a genus whose species are very difficult of discrimination, and whose Indian ones have lately been carefully revised by Mr. C. B. Clarke for the "Flora of British India." Of these several have been figured under false names in this Magazine. Thus Plate 5957 represents, under the name of *E. palatiferum*, Nees (according to Mr. Clarke), two species, neither of them the true *palatiferum* of Nees, the right-hand one being *E. cinnabarinum*, Wall, and the left-hand one *E. malaccense*, Clarke. I quite concur in Mr. Clarke's opinion as to neither of the plants figured on this Plate being the true *palatiferum*, but find it difficult to believe that they are specifically distinct from one another. Another is *E. crenulatum* var. *grandiflorum* (Plate 5440), which is the *E. Parishii*, Clarke (Asystasia Parishii, *T. Anders. in Journ. Linn. Soc.* vol. ix. p. 526). From the two first of these *E. borneense* differs in the form of the strict stout spike, the flowers of which are not secund, and from *E. Parishii* it differs in the corolla-tube not being funnel-shaped above. A much nearer ally is the *E. Andersoni*, Masters (Bot. Mag. Plate 5771), which has a glabrous corolla tube, and a spotted lower lobe of the corolla limb, and very long lanceolate leaves narrowed at both ends.

Eranthemum borneense was discovered in N.W. Borneo

July 1st, 1883.

by Mr. Curtis, when collecting for Messrs. Veitch, by whom the plant was sent to Kew in May of last year.

DESCR. A nearly glabrous shrub; branches terete, smooth, green. *Leaves* four to six inches long, very shortly petioled, ovate-oblong, acuminate, quite entire, base rounded or acute, glabrous, studded with raphides, thickly coriaceous, bright pale green above, paler beneath with a very stout broad midrib, nerves eight to ten pairs strong beneath arched. *Spike* four to six inches long; peduncle and rachis strict, stout, erect, finely pubescent, unbranched. *Flowers* crowded all round the rachis, forming a conical inflorescence; bracts and bracteoles minute, subulate. *Calyx* one-third of an inch long, pubescent; lobes subulate, acute. *Corolla* white, with a faint lemon tinge on the middle of the lower segments; tube an inch long, quite cylindric, pubescent, throat not dilated; limb an inch and a half in diameter, obscurely two-lipped, quite flat, segments oblong obtuse, the lower largest. Fertile *stamens* with purple anthers; rudimentary stamens minute at the base of the fertile. *Ovary* glabrous.—*J. D. H.*

Fig. 1, Calyx, bracteoles, and style; 2, interior of portion of corolla-tube with stamens; 3, fertile anther; 4, ovary and disk:—*all enlarged.*

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son lith

L. Reeve & Co. London.

Tab. 6702.

SAXIFRAGA MARGINATA.

Native of Southern Italy and Greece.

Nat. Ord. Saxifragaceæ.—Tribe Saxifrageæ.

Genus Saxifraga, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 635.)

Saxifraga (Kabschia) *marginata*; glanduloso-pubescens, cæspitosa, caudiculis lignosis dense foliosis, foliis radicalibus rosulatis cuneato-obovatis obtusis basi ciliatis cartilagineo-marginatis caulinis linearibus erectis, caule florifero erecto, floribus corymbosis, calycis nigro-glandulosi lobis oblongo-ovatis obtusis, petalis amplis obovatis 5–7-nerviis staminibus triplo longioribus, capsula late ovoidea.

S. marginata, *Sternb. Saxifr. Suppl.* vol. i. t. 1, f. 1; *Moretti Tent. Saxifr.* 35; *Bertoloni Fl. Ital.* vol. iv. p. 460; *Ten. Fl. Nap.* t. 234; *Engler Monog. Gatt. Saxifr.* p. 262.

S. cotyledon, *Ten. Cat. Hort. Neap. App.* vol. ii. p. 86.

S. Boryi, *Boiss. Diagn. Ser.* 2, p. 65; *Fl. Orient.* vol. ii. p. 801.

Saxifraga marginata belongs to a section of the genus as divided by Engler in his valuable monograph published in 1872, called *Kabschia*, in which the leaves are pitted and secrete lime along the margins and at the tip, and have perennial shoots with alternate leaves. About eighteen species belong to this section, most of them natives of dry calcareous mountains in the south of Europe, and the Levant, from whence they spread eastwards to the Himalaya. Mr. Ball, in a note attached to the specimen in the Kew Herbarium, remarks that its nearest ally is *S. scardica*, Griseb., with which it should perhaps be united, and that it differs from its other ally, *S. media*, in the inflorescence and large white flowers, which latter are erroneously coloured red (possibly through the discoloration of the pigments) in Sternberg's great work. *S. scardica* (a native of Greece) differs, according to Engler, in having deeply keeled acute leaves.

S. marginata is a native of Mount Taygetus in Greece, from whence, however, I have seen no specimens; those I have seen are from the Abruzzi in Italy, collected by

Tenore, and the mountains above Amalfi, at an elevation of 3500 feet. The specimen figured was presented by Mr. Maw, and flowered in the Royal Gardens in March last. Mr. Maw informs me that Mr. F. N. Reid, of Minori, is the collector and introducer of the plant from the mountains not far from Minori.

Descr. Densely tufted; shoots perennial, hard. *Leaves*, radical glabrous, forming rosettes one-half to one inch in diameter, densely coriaceous, cuneate-obovate, obtuse, not keeled below, ciliate at the base, margin and tip cartilaginous, and marked with a series of pits covered with a white calcareous incrustation. *Flowering-stems* two to four inches high, stout, glandular-pubescent, laxly clothed with erect appressed linear obtuse glandular-pubescent cauline leaves. *Flowers* corymbose, shortly pedicelled, one-half to three-quarters of an inch in diameter; pedicels and calyces clothed with black glandular hairs. *Calyx* campanulate, cleft to the middle, lobes ovate acute. *Petals* obovate, five to seven-nerved, spreading and recurved, white. *Stamens* much shorter than the petals, filaments subulate. *Styles* conical, stout, erect, stigmas terminal. *Capsule* broadly ovoid.—*J. D. H.*

Fig. 1, Portion of leaf; 2, calyx; 3, stamen; 4, ovary :—*all enlarged.*

M.S. del. J.N. Fitch. ad nat.

Vincent Brooks, Day & Son Imp.

TAB. 6703.

CAMPANULA JACOBÆA.

Native of the Cape de Verd Islands.

Nat. Ord. CAMPANULACEÆ.—Tribe CAMPANULEÆ.

Genus CAMPANULA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 561.)

CAMPANULA (Medium) *Jacobæa;* fruticulosa, strigoso-hirta, caule noduloso lignescente cavo, ramis diffusis herbaceis foliosis, foliis oblongis v. ovato-oblongis obovato-spathulatisve obtusis v. subacutis supremis ½-amplexicaulibus, calycis tubo brevi cyathiformi laciniis anguste lanceolatis strigoso-ciliatis, corolla campanulata æquali calycis laciniis 3-plo longiore, filamentis plano-filiformibus basi dilatatis fere glaberrimis, capsula depressa seminibus ovatis.

C. jacobæa, *Chr. Sm. in Tuck. Voy.* p. 251; *Webb in Hook. Niger Fl.* p. 148, t. 12, *icon in Hook. Ic. Pl.* t. 772, *iterata.*

As coming from a comparatively low level, in a thoroughly tropical and indeed a very hot archipelago, *Campanula Jacobæa* forms a remarkable exception to the rule that the genus to which it belongs is eminently one of temperate and, indeed, cold latitudes. It is certainly one of the last vegetable forms that might be expected to occur in the torrid and generally arid Cape de Verd Islands, in lat. 15° N., and which forms geographically an insular continuation of the Saharan region. In this, as in other respects of its botany, the Cape de Verd Islands display an affinity with the Floras of the temperate Atlantic Islands to the northward of them (Canaries, Madeira, and Azores), which is totally out of harmony with their physical conditions, and thus affords one of the strongest proofs known of a previous land-connexion, whose effects on the Flora have not been obliterated by subsequent geographical segregation. The late Mr. P. B. Webb, who published the first Florale of the Cape de Verds, founded principally on the collections made by Christian Smith in 1816, by myself in 1839, and by Vogel in 1841, and which appeared in the "Niger Flora," states that nearly one-fifth of the species then known belong to Canarian genera or forms, only a tenth to the Arabo-

JULY 1ST, 1883.

Nubian, and a twelfth to the forms of the Mediterranean region. Amongst these forms common to the temperate Atlantic Islands the *Campanulaceæ* hold a most conspicuous place, as instanced by the beautiful *Campanula Vidalii* (Plate 4748) being peculiar to one spot in the Azores Islands; *Musschia aurea* (Plate 6556), and *M. Wollastoni* (Plate 5606), being both confined to Madeira; and *Canarina Campanula* (Plate 444) being restricted to the Canary Islands. Nor is this continuity of vegetable affinities confined to the *Campanulaceæ;* it extends to *Compositæ*, *Cruciferæ*, and other conspicuous Orders.

Campanula Jacobæa is a rather common Cape de Verd plant, inhabiting S. Nicolas, Brava, S. Antonio, S. Vincent, and S. Jago, in which last I gathered it (in 1839) on arid rocks about 2000 feet above the sea-level. It was introduced into cultivation by our valued correspondent, Max Leichtlin, who communicated seeds to Kew, which produced (in a cold frame) the flowering specimen here figured in March of this year. The flowers in a native state vary in colour from pale greenish-yellow to a deep blue; those that were produced at Kew were of the colour represented in the flower at the side of the Plate.

Descr. An undershrub, two to three feet high; stem below woody, hollow, gnarled, brittle; branches green, angular, rather soft, leafy; all parts, except the corolla, hispid with white spreading hairs. *Leaves* one and a half to two and a half inches long, sessile or subsessile, oblong ovate or obovate-oblong, obtuse or subacute, narrowed at the base; upper cordate, half-amplexicaul. *Flowers* axillary on curved pedicels two to three inches long, nodding or drooping. *Calyx-tube* very small; segments one-half to two-thirds of an inch long, erect, narrowly lanceolate, margins at the base reflexed, sinus sometimes produced backward into an auricle. *Corolla* campanulate, one to one and a half inches long, deep blue or pale greenish, lobes very short and broad. *Filaments* slender, dilated and slightly hairy at the base. *Style* pubescent.—*J. D. H.*

Fig. 1, Flower from a native specimen; 2, and 3, stamens; 4, pistil:—*all but fig.* 1 *enlarged.*

M. S. del. J. N. Fitch lith

Vincent Brooks Day & Son Imp

TAB. 6704.

LICUALA GRANDIS.

Native of New Britain.

Nat. Ord. PALMEÆ.—Tribe CORYPHEÆ.

Genus LICUALA, *Thunb.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 928.)

LICUALA *grandis;* glaberrima, caudice erecto superne vaginis vetustis foliorum obtecto, foliis perplurimis erecto-patulis, petiolo 3-pedali gracili glaberrimo, marginibus infra medium spinosis, spinis brevibus validis rectis v. curvis, lamina orbiculari v. semi-orbiculari concavo basi cuneato v. truncato creberrime plicato, marginibus breviter fissis, lobis obtuse 2-fidis, ligula brevi late ovata acuta crassa, spadicibus axillaribus foliis paullo brevioribus gracilibus glaberrimis, ramulis floriferis distantibus paniculatim ramosis sessilibus, spathis 2-pollicaribus lanceolatis acuminatis brunneis, floribus ⅓ poll. longis viridibus cum pedicello brevissimo articulatis, calyce tubuloso-campanulato ore truncato sublobato, petalis calyce brevioribus late ovatis acutis marginibus crassis, staminibus sinubus cyathi magni 6-lobi crasse coriacei insertis, filamentis subulatis lobis triangularibus cyathi æquilongis, antheris oblongis, ovario obovoideo e carpellis 3 leviter cohærentibus, stylo brevi filiformi integro.

L. grandis, *H. Wendl. MSS.—André Illustr. Horticol.* t. 412.

PRITCHARDIA grandis, *Hort. Bull.*

The subject of the present Plate is one of the most striking Palms that have ever been introduced into this country; it is graceful in habit, with a bold crown of brilliantly green leaves, the rounded cup-shaped form of which, delicately folded in innumerable plaits, and doubly cut round the edges, are characters quite unlike those of any other Palm known in cultivation. The precise date of its introduction is not known; it was exhibited at the International Horticultural Show at Brussels in 1876 by Mr. Bull, from whose possession it passed into that of Mr. Wills, and from him to the Royal Gardens, Kew, where it forms one of the chief ornaments of the Tropical House No. 1.

The genus *Licuala*, consisting of about thirty known species, is very badly represented in the Palm Houses of Europe; most are small Palms of very elegant habit, natives of the hotter regions of Eastern Asia, and from

thence spread through the South Sea Islands, whence, no doubt, many new species are to be obtained.

P. grandis flowered for the first time in Mr. Wills's establishment at Anerley in February, 1881, but did not ripen seeds.

Descr. Whole plant six feet high to the base of the topmost petiole. *Trunk*, three feet and a half to the base of the leaves, ten inches in circumference, leaf-bearing for nearly half of its length, clothed shortly below the leaves with the sheaths of the old leaves, which are semi-amplexicaul and about three inches long. *Leaves* about twenty in the crown, erect and slightly spreading, deep bright green; petiole two and a half to three feet long, slender, concavo-convex, armed with short stiff nearly straight or curved sometimes irregularly forked spines along the margins from the base to the middle, ending in a short ovate acute concave thickly coriaceous ligule; blade suberect, three feet in diameter, and about two long, orbicular or semi-orbicular, concave from the incurving of the sides and more or less of the whole blade, closely plaited and a little wavy, base cuneate or truncate, margins cleft into bifid lobes about an inch long, lobules of the lobes very obtuse. *Spadixes* several, rising from amongst the leaves and nearly as long as they are, suberect; rachis as thick as the little finger, cylindric, terete, quite smooth, giving off at intervals of a foot or less flowering panicles five to six inches long. *Spathes* at the bases of the panicles two or more, two to three inches long, lanceolate, acute, concave, brown, striated. *Flowers* one-third of an inch long, jointed on to very short pedicels or sessile on the branches of the panicle. *Calyx* tubular-campanulate, terete; mouth truncate, slightly lobed. *Petals* as long as the calyx, ovate, acute, concave, very thick, with broad margins and an inflexed tip. *Stamens* very small, inserted between the triangular teeth of a six-lobed coriaceous cup; filaments subulate, as long as the teeth of the cup; anthers oblong. *Ovary* of three slightly cohering wedge-shaped carpels, united by a very short entire style; stigma simple.—*J. D. H.*

Fig. 1, Top of petiole and base of leaf blade; 2, branch of panicle and flower; 3, flower spread open; 4, calyx cut open and petals in bud; 5, petal; 6, staminal cup and stamens; 7, ovary; 8, the same with the carpels disunited:—*all but fig.* 1 *enlarged.*

M.S. del, J.N. Fitch lith.

Vincent Brooks, Day & Son Imp.

L. Reeve & Co. London.

ALOE pratensis.

Native of the Cape of Good Hope.

Nat. Ord. Liliaceæ.—Tribe Aloineæ.

Genus Aloe, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 776.)

Aloe *pratensis;* acaulis, foliis permultis dense rosulatis oblongo-lanceolatis acuminatis semipedalibus viridibus glauco tinctis immaculatis obscure verticaliter lineatis dorso superne tuberculato-aculeatis margine aculeis magnis patulis rubro-brunneis armatis, pedunculo valido simplici bracteis vacuis multis scariosis ovatis acuminatis prædito, racemo denso simplici, pedicellis ascendentibus flore sæpe longioribus, bracteis magnis ovatis acuminatis, perianthii splendide rubri tubo brevissimo campanulato, segmentis lanceolatis, genitalibus demum breviter exsertis.

A. pratensis, *Baker in Journ. Linn. Soc.* vol. xviii. p. 156.

This is a well-marked and very handsome new species of the dwarf acaulescent group of Aloes, allied to *A. humilis* and *A. aristata*. We first received it from Mr. Thomas Cooper, of Reigate, in whose rich collection it flowered several years ago. In 1872, Professor McOwan sent two fine specimens for the Herbarium, gathered on the summit of the Boschberg, at an elevation of 4500 feet above sea-level. Lately it has flowered again in the collection of Mr. Justus Corderoy, of Blewbury, near Didcot, from whose specimen the present drawing was made.

Descr. Acaulescent. *Leaves* sixty or eighty in a dense rosette, oblong-lanceolate, acuminate, the outer ones five or six inches long, the inner ones growing gradually smaller, an inch and a half broad at the base, exclusive of the spines, narrowed gradually from the base to the point, firm in texture, an eighth of an inch thick in the middle, green with a slight glaucous tinge, obscurely lineate vertically on both back and face, not spotted, furnished on the margin with large red-brown deltoid cuspidate horny spines, a few of which extend to the back of the leaf near its tip. *Peduncle* short, stout, simple, a foot or more in length,

furnished with copious ascending scariose ovate acuminate empty bracts. *Raceme* dense, simple, finally half a foot or a foot long; pedicels ascending, often longer than the flowers; bracts of the inflorescence just like those of the peduncle. *Perianth* cylindrical, bright red tipped with green, an inch and a quarter long; segments lanceolate, united only in a short cup at the base. *Stamens* and *style* finally a little exserted from the perianth; anthers minute, oblong, orange-yellow.—*J. G. Baker.*

Fig. 1, The whole plant, *much reduced;* 2, a flower, *slightly enlarged;* 3, an anther, viewed from the face; 4, an anther, viewed from the back; 5, pistil:—*all enlarged.*

A.B. del J.N.Fitch lith.

Vincent Brooks, Day & Son Imp.

Tab. 6706.

DENDROBIUM REVOLUTUM.

Native of the Malay Peninsula.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Dendrobium, *Sw.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 498.)

Dendrobium (Eudendrobium) *revolutum*; caulibus cæspitosis robustis sulcatis evaginatis, internodiis brevibus, foliis 1–2-pollicaribus sessilibus ½-amplexicaulibus oblongis ovato-oblongisve obtusis emarginatisve subtus carinatis enerviis, floribus solitariis oppositifoliis, sepalis petalisque ovato-lanceolatis subacutis recurvis albis, sepalo dorsali ceteris paullo majore, labello petalis multo majore oblongo-quadrato convexo apice truncato angulis rotundatis, lobis lateralibus ad basin medii parvis oblongis obtusis, disco exarato lineis 3 rubris ceterum aureo-viridi, calcare petalis subæquilongo fere recto subacuto, columna brevi obtusa.

D. revolutum, *Lindl. in Bot. Reg.* vol. xxvi. (1840), *Misc.* p. 51; *Part. Fl. Gard. Ic. Xylog.* n. 42; *Walp. Ann.* vol. vi. p. 291.

A very singular form of *Dendrobium*, one of a small group which inhabits the Malayan Peninsula and Islands. Its nearest ally is the *D. uniflorum*, Griff. (Notul. vol. iii. p. 305, and Ic. Pl. Asiat. t. 303), which differs in the much broader sepals, petals, and lip, and is a native of Mount Ophir, Malacca. This or *D. uniflorum* may further prove to be the same as one of two plants from Penang, distributed by Wallich under his number 2002, with the name of *D. bifarium*, Lindl., and which consist respectively of a *Dendrobium* without flower or fruit, but with axillary bracts, as in *D. uniflorum* and *revolutum*, and another plant with terminal and axillary short racemes, which Lindley subsequently rightly identified with a Hong-Kong one, and which is his *Appendicula bifaria* (Kew Journ. Bot. vol. vii. p. 35).

D. revolutum is a native of Singapore, whence it was first introduced into England nearly fifty years ago by the veteran collector Cuming, and cultivated by the Messrs. Loddiges. The specimen here figured was received from C. Peche, Esq., of Moulmein, in 1882, along with other orchids. The original Singapore specimen preserved in

August 1st, 1883.

Lindley's Herbarium at Kew is identical with our plant as to flower, but has a more slender stem and narrow leaves three and a half inches long. A specimen from the Rev. Mr. Parish, collected presumably in Moulmein, is undistinguishable from that here figured in stem, leaves, and form and size of flower, but according to a drawing which accompanies it, the lip is a dull green without the thin red streaks.

D. revolutum flowered in the Orchid House of the Royal Gardens in July of the present year.

Descr. *Pseudo-bulbs* none. *Stems* tufted, a foot long, as thick as a goose-quill, deeply furrowed; internodes one-quarter to two-thirds of an inch long, not swollen; sheaths none. *Leaves* numerous, distichous, one to two inches long (three and a half inches in Lindley's specimen), oblong or linear- or ovate-oblong, obtuse or retuse, semi-amplexicaul, keeled by the midrib, striate when dry. *Flowers* solitary, axillary, three-fourths of an inch long from the tip of the dorsal sepal to that of the lip; bracts caducous; pedicel slender, decurved, with the ovary two-thirds of an inch long. *Sepals* and *petals* white, reflexed upwards, lanceolate, acute, nearly equal, except the dorsal sepal, which is rather the longest and broadest. *Lip* nearly quadrate, convex, bright yellow-green, tip truncate with rounded angles; lateral lobes small, marginal lobes towards the base of the median; disk with three furrows and red bands; spur as long as the sepals, nearly straight, subacute. *Column* very small, prone upon the labellum, and about one-third of its length.—*J. D. H.*

Fig. 1, Flower with sepals and petals removed; 2, column and spur; 3, pollen-masses; 4, anther-case:—*all enlarged*.

M.S del. J.N.Fitch ir.th

Vincent Brooks, Day & Son Imp.

L. Reeve & Co. London.

Tab. 6707.

ALLIUM Macleanii.

Native of Cabul.

Nat. Ord. Liliaceæ.—Tribe Allieæ.

Genus Allium, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 802.)

Allium (Molium) *Macleanii;* bulbo globoso, foliis 4–5 lanceolatis glabris pedalibus, pedunculo tereti 2–3-pedali, umbello globoso multifloro pedicellis strictis elongatis, spathæ valvis oblongo-lanceolatis pedicellis multo brevioribus, perianthii parvi pallide purpurei segmentis oblongo-lanceolatis flore expanso patulis, genitalibus perianthio 1½–2-plo longioribus, filamentis conformibus linearibus, ovario viridi trilobato granulato, ovulis in loculo geminis collateralibus.

This is a fine new tall many-flowered *Allium*, of which the bulbs were brought from Cabul by Colonel Maclean. It was flowered for the first time last summer by Mr. James Wilson, of St. Andrews, from whose plant the present drawing was made. It does not resemble any known European, Oriental, or Himalayan species, but we have, in the Kew Herbarium, a closely-allied undescribed species from Beluchistan, gathered by Dr. Stocks, and it also nearly resembles two of Dr. Regel's new species from Central Asia, *A. stipitatum* and *A. Suwarowi*, both of which have lately been figured in the Gartenflora, on Plate 1062.

Descr. *Bulbs* symmetrical, solitary, globose. *Leaves* four or five, contemporary with the flowers, evanescent, lanceolate, green, about a foot long, an inch or an inch and a half broad, flat, glabrous both upon the surfaces and margins. *Peduncle* terete, flexuose, moderately stout, two or three feet long. *Umbel* dense, globose, three or four inches in diameter; spathe-valves two, oblong-lanceolate, membranous, evanescent, much shorter than the pedicels, which are stiff and slender, and attain a length of one and a half or two inches. *Perianth* mauve-purple, a quarter of an inch long; segments oblong-lanceolate, acute, spreading horizontally when fully expanded, furnished with a distinct

one-nerved keel down the back. *Filaments* pale mauve-purple, uniform, linear, much longer than the perianth-segments; anthers small, oblong. *Ovary* greenish, orbicular, deeply lobed, with a pair of collateral ovules in each cell.—*J. G. Baker.*

Fig. 1, A flower complete; 2 and 3, stamens; 4, pistil:—*all more or less enlarged.*

M.S. del. J.N Fitch lith.

Vincent Brooks, Day & Son Imp.

L Reeve & Cº London.

TAB. 6708.

NYMPHÆA ODORATA, *var.* minor floribus roseis.

Native of the United States.

Nat. Ord. NYMPHÆACEÆ.—Tribe NYMPHÆÆ.

Genus NYMPHÆA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 46.)

NYMPHÆA *odorata*, foliis orbicularibus basi ad petiolum fissis marginibus integerrimis, stipulis rhizomati appressis late triangularibus v. subreniformibus apice emarginatis, floribus albis odoratis, sepalis oblongis cum petalis et antheris obtusis, stigmatum appendicibus brevibus incurvis, seminibus stipitatis oblongis arillo multo brevioribus.

N. odorata, *Ait. Hort. Kew.* vol. ii. p. 227; *Bot. Mag.* t. 819; *A. Gray, Man.* ed. 5, p. 56.

Var. *rosea;* petalis roseis. N. odorata var. rosea, *Pursh. Fl. N. Am.* vol. ii. p. 369.

The rose-coloured varieties of the European *Nymphæa alba*, and of the American *N. odorata*, have attracted much attention in this country, and I have taken the opportunity of figuring the latter in order to correct the misapprehension raised by the figure and description of *N. odorata* var. *minor* published in 1814 in this work at Tab. 1652, which is there described as var. *B. rosea*, but which is not the true variety of that name. *N. minor*, DC. itself is only a small-leaved and flowered state of *N. odorata*, passing into it by every gradation, as remarked by Gray; and the rose-colour of the flowers is not confined to it, though possibly more usual in the smaller than in the larger states of the species. The plate, Tab. 1652, is, no doubt, referable to var. *minor*, and is a narrow-petalled state of that variety, but the calyx and petals, though described as rosy externally, are figured as pure white. This is the more remarkable, as the description says, "That it is really the rose-coloured variety of *odorata* of Pursh is certain, being the product of roots brought from America by himself. This excellent botanist describes the flowers as being externally of a rose colour; but in our plant neither calyx nor petals had any such

AUGUST 1ST, 1883.

stain." The author of the description in the Magazine goes on to state that the difference may have arisen from cultivation, for that the deep purple of the under-surface of the leaves, from want, perhaps, of sufficient air and intensity of light, did not, as described by Pursh, extend to the peduncles. To me it appears far more probable that Pursh brought the wrong plant, than that imported roots changed their character so suddenly as to produce in two successive years, first rose-coloured and then pure white flowers.

N. odorata extends throughout Eastern North America, from Newfoundland to Florida, which renders its absence in the western half of the continent very remarkable, as water-plants are so easily disseminated; and the same remark applies to the equally common American *Nuphar advena*, which is, however, represented by another species in Western America. The var. *rosea* is more local than the white-flowered form. There are specimens from Pursh in the Kew Herbarium from the Bass and Wardings Rivers, gathered in 1808, and Gray says that varieties with pinkish or rarely bright pink flowers and leaves often crimson underneath occur, especially at Barnstable in Massachusetts. Chapman does not mention it as a native of the Southern United States.

The Royal Gardens are indebted to Mr. Kennedy, who has done so much for the introduction of water-plants into this country, for the specimen from which this figure is taken, and which flowered in the tropical Water-Lily House nearly all the summer.—*J. D. H.*

Fig. 1, Outer, and, 2, inner stamens; 3, vertical section of torus, with stamens and ovary:—*all enlarged.*

M. S. del., J. N. Fitch, lith.

Vincent Brooks Day & Son, Imp

Tab. 6709.

CRINUM Hildebrandtii.

Native of the Comoro Islands.

Nat. Ord. Amaryllideæ.—Tribe Amaryllæ.

Genus Crinum, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 726.)

Crinum (Platyaster) *Hildebrandtii;* bulbo ovoideo collo elongato, foliis 8–10 synanthiis lanceolatis glabris sesquipedalibus vel bipedalibus, scapo gracili ancipiti subpedali, umbellis 6–10-floris, pedicellis subnullis vel brevissimis, spathæ valvis lanceolatis reflexis, perianthii albi tubo recto cylindrico 6–7-pollicari, limbi segmentis lanceolatis horizontaliter patulis tubo subtriplo brevioribus, filamentis purpureis perianthii segmentis brevioribus, stylo exserto.
C. Hildebrandtii, *Vatke in Monats. Königl. Acad. Wissen. Berl.* 1876, p. 863; *Baker in Gard. Chron.* 1881, p. 180.

This is a well-marked new species of *Crinum*, allied to *C. americanum* and *erubescens*, but from a totally different part of the world. It was discovered about 1875 amongst the mountains of Johanna Island, at an elevation of 3000 feet above sea-level, by the late Dr. Hildebrandt, who, after a series of courageous explorations in Somali-land and other little-known regions of East Tropical Africa, visited Madagascar, and after making in the island large and valuable collections, died a couple of years ago at Antananarivo, worn out by his exertions. It was sent home by him about 1875 to the Botanic garden at Berlin. I am not aware that any of the original stock ever reached this country; but it was rediscovered by Sir John Kirk in 1878, and it was from bulbs presented by him to Kew, which flowered in November, 1881, and again in the winter of 1882, that our drawing was made.

Descr. *Bulb* ovoid, two or three inches in diameter, with a neck finally half a foot long. *Leaves* eight or ten, contemporary with the flowers, lanceolate, bright green, firm in texture, a foot and a half or two feet long, two or two and a half inches broad at the middle, narrowed gradually to the apex, quite glabrous on the margins.

September 1st, 1883.

Peduncle slender, lateral, ancipitous, about a foot long; umbel of six to ten nearly or quite sessile flowers; spathe-valves two, lanceolate, reflexed. *Perianth* pure white, erect, with a cylindrical tube six or seven inches long; segments of the limb lanceolate, spreading horizontally when fully expanded, two or three inches long, under half an inch broad. *Filaments* bright purple, shorter than the perianth-segments; anthers linear, three-quarters of an inch long. *Style* finally exserted beyond the perianth-segments; stigma capitate.—*J. G. Baker.*

Fig. 1, Front view of an anther; 2, back view of an anther; 3, apex of style, with stigma:—*all enlarged.*

2.

3.

5.

4.

1.

M. S. del. J. N. Fitch lith.

Vincent Brooks Day & Son Imp.

Tab. 6710.

TULIPA Kolpakowskyana.

Native of Turkestan.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Tulipa, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 818.)

Tulipa *Kolpakowskyana;* bulbo magno ovoideo, tunicis castaneis exterioribus intus parce adpresse-strigosis, caule valido unifloro glabro, foliis 3–4 margine obscure ciliatis, inferiori lanceolato subpedali, superioribus linearibus, flore leviter odoro ante anthesin subnutante, perianthio magno campanulato splendide rubro vel luteo segmentis subconformibus oblongis acutis exterioribus magis patulis, filamentis glabris, ovario crasso trigono, stigmatibus magnis crispatis.

T. Kolpakowskyana, *Regel in Act. Hort. Petrop.* vol. v. p. 266; *Gartenflora*, vol. xxvii. (1878), pp. 293, 336, t. 951; *Gard. Chron.* 1880, f. 111 et 113; *Baker in Gard. Chron.* 1883, vol. i. p. 789.

This new Tulip from Central Asia is a very fine plant, and likely to prove quite hardy in our English climate, and to become a popular favourite. It is a near ally of *T. Gesneriana*, with which it quite agrees in bulb and general habit, differing in its earlier time of flowering and in the segments being narrowed gradually to an acute point. It is likely that it will prove equally variable with *T. Gesneriana* in the colouring of the flower. Mr. Elwes, who supplied the specimen for the present figure, says:—"The colour is either bright cherry red, with a black eye, purplish-black anthers and filaments; or yellow, flamed reddish on the back of the three outer segments; or pure yellow, with blackish eye and yellow anthers and filaments." It is a native of Turkestan, and was introduced to the St. Petersburg garden by Dr. Albert Regel and Fetisow about 1877.

Descr. *Bulb* ovoid, about an inch in diameter, with brown membranous tunics, slightly strigose inside. *Stem* erect, terete, one-flowered, about a foot long. *Leaves* three or four to a stem, slightly glaucous, unspotted, obscurely ciliated on the margin, glabrous on the face and back, the lowest lanceolate, about a foot long by an inch broad, the

upper ones linear. *Peduncle* glabrous, erect, six or nine inches long. *Bud* slightly nodding. *Flower* faintly scented, campanulate, two or two and a half inches long in the cultivated plant; all the segments oblong and acute, an inch or more broad at the middle, the three outer, when the flower expands, spreading away from the three inner. *Segments* in the typical red-flowered form, as figured, with a faint yellow-black blotch filling up the whole claw. *Stamens* about an inch long, the glabrous filament often shorter than the linear anther. *Ovary* large, stout, with three large much-crisped stigmas.—*J. G. Baker.*

Fig. 1, Bulb; 2 and 3, bases of perianth segments:—*all of the natural size;* 4, stamen, and 5, ovary:—*both enlarged.*

M.S. del, J.N. Fitch, lith.

Vincent Brooks Day & Son Imp

Tab. 6711.

LEUCOIUM hyemale.

Native of the Maritime Alps.

Nat. Ord. Amaryllidaceæ.—Tribe Amaryllеæ.

Genus Leucoium, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 720.)

Leucoium (Ruminia) *hyemale;* bulbo globoso tunicis membranaceis, foliis 2–4 synanthiis vernalibus anguste linearibus glabris facie canaliculatis, pedunculo gracili 1–2-floro, pedicellis cernuis, spathæ valvis linearibus, ovario turbinato, perianthii segmentis albis oblongis dorso viridulis laxe multinervatis, exterioribus acutis, interioribus paulo brevioribus obtusis, antheris conniventibus lanceolatis filamentis brevissimis, stylo cylindrico, stigmate papilloso, seminibus dimidiato-oblongis nigris punctatis carunculatis.

L. hiemale, *DC. Fl. Franc. Suppl.* p. 326, *ex parte; Bertol. Fl. Ital.* vol. iv p. 6; *Moggridge Cont. Fl. Mentone*, t. 21.

Galanthus autumnalis, *Allioni Auct. ad Fl. Pedem.* p. 33, *excl. syn.*

Acis hyemalis, *Rœm. Amaryll.* p. 55; *Kunth Enum.* vol. v. p. 475.

Ruminia hyemalis, *Parlat. Fl. Ital.* vol. iii. p. 85.

R. nicæensis, *Jord. et Fourr. Icones*, p. 26, t. 65, f. 108.

This graceful little Snowflake is one of the rarest of European plants. It is confined to a small strip of rocky shore reaching from Nice to two miles east of Mentone. The name "*hyemale*" conveys a wrong idea, for it does not flower till April, and for that reason M. Jordan has proposed to change it to "*nicæensis.*" The first specimens I remember to have seen at Kew were flowered in the herbaceous ground in the spring of 1871, from bulbs brought home by our valued correspondents, now both deceased, Messrs. M. and J. T. Moggridge, the latter of whom figured it beautifully for the first time in his illustrated book on the plants of Mentone. Lately Mr. Geo. Maw has supplied us with a good stock, and it is from his specimens that the present drawing has been made.

Descr. *Bulb* globose, under an inch in diameter, with several membranous brown tunics. *Leaves* two to four, contemporary with the flowers, erect, narrow linear,

glabrous, six or twelve inches long, channelled down the face. *Peduncle* slender, erect, one- or two-flowered; pedicels cernuous; spathe-valves two, linear. *Ovary* green, turbinate. *Perianth* white; segments oblong, imbricated, half an inch long, tinged with green on the back and laxly many-veined, the three inner rather shorter and more obtuse than the three outer. *Stamens* epigynous; anthers lanceolate, bright yellow, permanently connivent; filaments very short. *Style* cylindrical; stigma minute, terminal, papillose. *Fruit* a membranous turbinate capsule. *Seeds* dimidiate-oblong, black, punctate, furnished with a conspicuous fleshy white carunculus.—*J. G. Baker.*

Fig. 1, An outer segment of the perianth; 2, an inner segment; 3, pistil and stamens; 4, an anther, viewed from the front; 5, one of the lobes of the epigynous disk:—*all enlarged.*

M.S. del, J.N. Fitch lith

Vincent Brooks Day & Son imp.

L. Reeve & Co. London.

TAB. 6712.

PRIMULA FLORIBUNDA.

Native of the Western Himalaya.

Nat. Ord. PRIMULACEÆ.—Tribe PRIMULEÆ.

Genus PRIMULA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 631.)

PRIMULA *floribunda;* glanduloso-pubescens, foliis vernatione conduplicatis ellipticis ovatisve acutis v. obtusis in petiolum latum angustatis irregulariter crenato-dentatis, floribus in verticillos superpositos involucratos dispositis gracile pedicellatis, involucri bracteis sessilibus foliaceis ovatis lanceolatisve acutis, calycis segmentis ovatis acuminatis fructiferis reflexis, corollæ flavæ tubo gracili piloso calyce duplo longiore, limbi lobis obcordatis, capsula globosa, dein conico-ovoidea ad basin latam 5-valve, valvis membranaceis, seminibus minutis angulatis granulatis.

P. floribunda, *Wall. Tent. Fl. Nep.* t. 33, *et Cat.* no. 1825; *Duby in DC. Prodr.* vol. viii. p. 35; *Hook. f. Fl. Brit. Ind.* vol. iii. p. 495, xix. part i. p. 113, f. 17; *Gard. Chron.* N.S. vol. xix. p. 113, f. 17.

P. obovata, *Wall. Cat* no. 610.

ANDROSACE obovata, *Wall. MSS.*

P. floribunda belongs to a small section of the genus in which the leaves, instead of having revolute margins in vernation, are complicate, having them folded down the middle on the upper face. The species are remarkable for inhabiting comparatively very low elevations in warm countries. Thus the plant here figured is found at lower elevations in the Himalaya than any other of the numerous species that inhabit that rich region, occurring between 2500 and 6500 feet along the whole division of the range which extends from Kumaon to Kashmir; occurring also in Affghanistan, where it was collected by Griffith on the banks of canals at Pushut. Its nearest allies are *P. verticillata*, Forsk (Plate 2842, which is the same as *P. Boveana*, Dcne.), a native of the mountains of Arabia, and *P. simensis*, Hochst. (*P. verticillata* var. *simensis*, Masters in Gard. Chron. 1870, p. 597, and our Plate 6042), which is an Abyssinian plant.

The specimen here figured was received from the Royal

Botanical Gardens of Edinburgh, and flowered at Kew in a cool frame in March, continuing in flower till May.

Descr. Whole plant clothed with more or less glandular jointed soft hairs. *Rootstock* woody, as thick as the little finger, covered with the withered bases of the petiole. *Leaves* three to six inches long, spreading, membranous, ovate or elliptic, rarely spathulate or obovate, contracted into a very broad petiole of variable length, coarsely crenate-toothed; nerves prominent, reticulate. *Scapes* numerous, four to eight inches high, slender, bearing two to six superposed whorls of three to six flowers, subtended by an involucre of three or four bracts. *Bracts* a quarter of an inch to an inch long, sessile, ovate or lanceolate, acuminate, toothed, usually three-nerved. *Pedicels* slender, spreading, unequal. *Calyx* a quarter of an inch long, cleft nearly to the base into five ovate acuminate membranous sepals, which are spreading or recurved. *Corolla* golden yellow, tube slender, one-third to one-half of an inch long, hairy; limb half an inch in diameter, flat; lobes obcordate, quite entire, mouth small. *Anthers* linear, sessile; *style* long or short, stigma capitate. *Capsule* globose, after dehiscence conico-ovoid from a broad base, split to the base into five membranous subacute valves. *Seeds* minute, angular, black, granulate.—*J. D. H.*

Fig. 1, Calyx; 2, pistil; 3, capsule and calyx; 4, seeds:—*all enlarged.*

A.B. del. J.N. Fitch lith.

L. Reeve & Cº London

TAB. 6713.

SENECIO CONCOLOR.

Native of South Africa.

Nat. Ord. COMPOSITÆ.—Tribe SENECIONIDEÆ.

Genus SENECIO, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 446.)

SENECIO *concolor*; herbaceus, glaber v. sparse pubescens, radice perennante, caule gracili superne ramoso angulato, foliis radicalibus caulinisque inferioribus anguste oblanceolatis obtusis in petiolum angustatis subtus purpurascentibus integerrimis v. sinuato-dentatis, superioribus sessilibus linearibus obtusis, supremis ad dichotomias a basi lata lanceolatis acuminatis argute dentatis, corymbis glanduloso-pubescentibus, pedicellis elongatis divaricatis, capitulis radiatis 1 unc. latis, involucro subhemispherico pauci-calyculato glanduloso, bracteis anguste linearibus acuminatis, fl. radii 10–12 ligula oblonga obtusa **purpurea, fl. disci albis antheris purpureis, acheniis puberulis.**

S. concolor, *DC. Prodr.* vol. vi. p. 407, *excl. var.* β; *Harv. et Sond. Fl. Cap.* vol. iii. p. 363, *in part*; *N. E. Brown in Gard. Chron. N.S.* vol. xii. part 1, **p. 615 (*sub* S. speciosus), *et* vol. xx. p. 75.**

This is a handsome South African species of *Senecio* belonging to the group which includes *S. speciosus* (Plate 6488). In Harvey and Sonder's "Flora Capensis," these two plants were confounded together, an error which was detected by Mr. N. E. Brown, who well describes the differences between them in the volumes of the "Gardener's Chronicle" quoted above. At first sight they reach the gorgeous *S. pulcher* (Plate 5959) of Temperate South America, but that species differs widely in its yellow disk-flowers, those of *S. concolor* being white with purple anthers, a fact which would militate against the adoption of the specific name, were it not that the said colour of the anthers being that of the rays just sufficiently justifies its retention.

S. concolor is a native of the mountainous district of Tulbaghe to the north-east of Capetown, where it was discovered by the collector Dregé about fifty years ago; and it has since been found by T. Cooper, when collecting for the late Mr. Wilson Saunders. The specimen was raised from

SEPTEMBER 1ST, 1883.

South African seed, which flowered in the Royal Gardens in a cool frame in July of last year.

DESCR. *Root* perennial. *Stem* one to two feet high, angular, and as well as the leaves sparsely pubescent, corymbosely branched above. *Radical leaves* four to six inches long, narrowly oblanceolate, obtuse, narrowed into a long or short petiole, quite entire or sinuate-toothed; upper leaves sessile, linear, obtuse, irregularly toothed; uppermost at the axils of the corymb, sessile and semi-amplexicaul, lanceolate, acuminate, toothed. *Heads* many, long-pedicelled, in a lax open corymb, about one inch in diameter, pedicels spreading and involucres glandular-pubescent. *Involucre* hemispherical, calyculate by a few subulate bracts at the base; receptacle convex. *Flowers* of the ray ten to twelve; rays distant, linear oblong, obtuse, purple; flowers of the disk not numerous, white, with purple anthers. *Achenes* striate, puberulous.—*J. D. H.*

Fig. 1, Involucre with bracts removed; 2, ray-flower; 3, its style arms; 4, disk-flower; 5, stamens; 6, pappus-hair; 7, achene and flower:—*all enlarged.*

M.S del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

SALVIA BOLIVIANA.

Native of Bolivia.

Nat. Ord. Labiatæ.—Tribe Monardeæ.

Genus Salvia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1194.)

Salvia (Calosphace) *boliviana*; erecta, suffruticosa, cano-puberula, foliis ovato-cordatis petiolatis rugulosis crenulatis, supra glabris, racemis pyramidatim paniculatis densifloris glanduloso-puberulis, verticillastris multifloris, calycis purpureo-virescentis labio superiore ovato acuto, inferiore æquilongo bicuspidato, corolla coccinea calyce quadruplo longiore glaberrima, labio superiore brevi porrecto obtuso concavo, inferiore vix duplo-majore breviter 3-lobo, lobis rotundatis.

S. boliviana, *Planch. in Flore des Serres*, t. 1148.

Under Plate 5947, the name *Salvia boliviana* will be found cited as a synonym of *S. rubescens*, Humb., Bonpl., and Kunth, a native of almost the same country, and so near an ally that, in the absence of specimens, the two species may well be confounded, if indeed they really differ specifically. Beautiful specimens of *S. boliviana*, sent by Messrs. Henderson, however, show that there are decided differences between them, as may be seen by a comparison of the plates. In habit, stature, foliage and pubescence, they are strikingly alike, as they are in the general characters of the inflorescence and structure and colour of the flowers; but the panicles of *S. boliviana* are much denser-flowered, the calyces larger with longer lips, and the corolla twice as long and straighter, with a smaller lower lip. It is for the size and number of the flowers much the handsomer plant, and indeed few species of the splendid genus to which it belongs can vie with it in the size, colour, and beauty of the inflorescence, though for size of flower it is far surpassed by *S. longiflora*, R. and P., the red corollas of which are four to five inches long: it is a native of the Bolivian Andes at elevations of 10,000 to

12,000 feet. *S. boliviana* was introduced by Van Houtte, and raised from seed collected by Warcsewicz, presumably in Bolivia; but this, according to Planchon, who published it in 1856, is not certain.

DESCR. A branched undershrub, sparingly hoary on the stem petioles and leaves beneath, glandular-pubescent on the inflorescence. *Leaves* three to six inches long, ovate-cordate, acute, wrinkled, crenulate; petiole slender, one to three inches long. *Panicle* subsessile, two feet high, branched; branches densely clothed with crowded whorls of flowers. *Flowers* many in a whorl, pedicelled, suberect; pedicel shorter than the calyx. *Calyx* three-quarters of an inch long, between funnel- and bell-shaped, dull purple or green and purple, base acute, tube deeply grooved and strongly nerved; lips one-third as long as the tube, recurved, broadly ovate, upper entire acute, lower with two small subulate teeth. *Corolla* four times as long as the calyx, tubular, slightly curved, glabrous, bright scarlet; upper lip very small, concave, obtuse, horizontal; lower about twice as long, broad, shortly three-lobed, lobes rounded. *Stamens* with one anther-cell slightly exserted, filaments very short; arms of the connective much longer than the filament, quite straight; barren arm rather shorter than the other; staminodes two, minute, capitellate. *Style* very slender, bearded below the tip.—*J. D. H.*

Fig. 1, Portion of corolla, stamens, and staminodes; 2, anthers; 3, disk and pistil:—***all enlarged.***

M. S. del, J. N. Fitch lith.

Vincent Brooks, Day & Son Imp.

L. Reeve & Co. London.

TAB. 6715.

DENDROBIUM CARINIFERUM, var. *Wattii*.

Native of Munipore.

Nat. Ord. ORCHIDEÆ.—Tribe EPIDENDREÆ.

Genus DENDROBIUM, *Sw.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 498.)

DENDROBIUM *caniniferum*; caulibus fasciculatis elongatis, internodiis 1–1½-polli-caribus cylindraceis, foliis alternis lineari-oblongis planiusculis apicibus minute 2-dentatis, vaginis supremis plus minus nigro-hirsutulis, floribus apices versus caulis aphylli solitariis v. 2-nis brevissime pedicellatis 2-poll. diametr. albis, sepalis oblongo-lanceolatis acuminatis lateralibus subfalcatis, petalis æquilongis latioribus ellipticis, labello albo striis flavis v. subcinnabarinis cuneato-flabellato, lobis lateralibus obtusangulis intermedio parvo obovato crispulo venis incrassatis papillosis, calcare fere recto robusto obtuso, columna recta apice tridentata, dentibus lateralibus ovatis dorsali longiore angustiore.

D. cariniferum, *Reichb. f. in Gard. Chron.* 1869, p. 611.

Var. *Wattii*; foliis angustioribus, vaginis fere glaberrimis, floribus majoribus, labello flavo fasciato lobo medio longiore oblongo apice 2-lobo.

Dendrobium caniniferum is very nearly allied to the well-known *D. longicornu*, Lindl., one of the commonest Indian species, remarkable along with some allies for the short stiff black hairs on the leaf-sheaths; nor should I be surprised if these two species were found to be connected by a series of varieties. As it is, however, the form of the perianth is too different to justify *D. caniniferum* being regarded as a variety. Dr. Reichenbach mentions *D. Xanthophlebium*, Lindl., and *D. Williamsoni*, Day and Rchb., as comparable with it.

D. caniniferum is a native of Burma, whence we have flowers collected at Bhamo, a district not far to the eastward of Munipore, where the subject of the present plate was procured, and which I think can only be regarded as a variety of the plant originally described by Reichenbach. It differs in the larger flowers, rather longer spur, the yellow bands on the lip, and the longer narrow mid-lobe of the latter, and the faintly hairy sheaths. The specimen figured came with a collection of orchids from Dr. Watt,

OCTOBER 1ST, 1883.

F.L.S., of the Education department of India, whilst attached to a mission engaged on the boundary survey of the kingdom of Munipore, on the eastern frontier of British India, a country previously quite unknown botanically. It flowered in October, 1882, soon after arrival.

Descr. *Stems* tufted, a foot and upwards long, rather slender; internodes one to one and a half inch long, cylindric, grooved when dry. *Sheaths* as long as the internodes, very sparsely clothed with a short furfuraceous black pubescence. *Leaves* alternate, three inches long, narrowly oblong, dull green, nearly flat, tip minutely notched; blade sessile on the sheath. *Flowers* shortly pedicelled towards the ends of leafless stems, single or in pairs, two inches in diameter, pure white with golden streaks on the lip. *Sepals* oblong-lanceolate, acuminate, spreading. *Petals* as long as the sepals, rather broader, elliptic, acute. *Lip* as long as the petals, convolute, cuneate when spread open with rounded rather crisped lateral lobes, and an oblong two-lobed small narrow mid-lobe; veins papillose; spur three-quarters of an inch long, straight, stout, obtuse, greenish at the tip. *Column* stout, tip three-fid, lateral teeth ovate acute, dorsal narrower and longer. *Anthers* puberulous.—*J. D. H.*

Fig. 1, Column; 2, front view of apex of ditto; 3, anther-case; 4, undeveloped pollinia:—*all enlarged.*

M.S. del. J.N. Fitch lith

Vincent Brooks Day & Son Imp

Tab. 6716.

KNIPHOFIA Leichtlinii.

Native of Abyssinia.

Nat. Ord. Liliaceæ.—Tribe Hemerocalleæ.

Genus Kniphofia, *Moench;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 775.)

Kniphofia *Leichtlinii;* acaulis, foliis 4-pedalibus patulis linearibus subtriquetris obtuse carinatis longe attenuatis læte viridibus non glaucescentibus, marginibus lævibus, scapo tereti fusco-viridi sesquipedali, floribus pendulis in spicam densam cylindraceam obtusam confertis, pedicellis 0, bracteis parvis ovato-lanceolatis scariosis, perianthio $\frac{3}{4}$-pollicari pallide aureo-miniato elongato-campanulato ore breviter obtuse 6-lobo, tubo supra ovarium vix constricto, genitalibus perianthio paullo longioribus.

K. Leichtlinii, *Baker MSS.*

The genus *Kniphofia* has attained a prominent place in gardens since the introduction in 1707 of the first species, *K. Uvaria* (see Plate 758, 4816, 6553), and the little *K. pumila* (Plate 764), introduced in 1774; and it now numbers upwards of sixteen species, whilst its geographical limits, which were for long supposed to be confined to South Africa, have been extended far to the north of the tropic in Abyssinia. It cannot be said that the genus has grown in beauty as it has in extent, for none of the species hitherto cultivated at all compares with the old *K. Uvaria* in size, colour, freedom of growth, or hardiness.

K. Leichtlinii is a native of Abyssinia, where it was discovered, and roots sent to the garden of the Grand Duke of Baden-Baden by the well-known traveller Schimper. The specimen here figured flowered in the Royal Gardens in September, 1881, from a plant presented by that admirable cultivator, Herr Max Leichtlin, of Baden-Baden. As a species it is perhaps nearest to the South African *K. pumila.*

Descr. *Stem* none; crown of leaves at the base one to one and a half inch in diameter. *Leaves* four feet long, spreading all round, about three-quarters of an inch in

diameter at one-third distance above the base, dilating at the base into a broad membranous sheath, and gradually narrowed to the tip; triquetrous, not deeply or sharply keeled, bright green, not at all glaucous, margins quite entire. *Scape* three to four feet high, naked, or with an occasional linear scarious or membranous bracteal leaf sometimes four to five inches long, dull green, minutely speckled with red, giving it a brown look. *Spike* three to four inches long, by one and a half to two inches in diameter, quite cylindric and obtuse; flowers quite sessile, pendulous; bracts a quarter of an inch long, ovate, acute, with long points, membranous, deflexed. *Perianth* three-quarters of an inch long, narrowly bell-shaped, slightly contracted above the base, dull pale vermilion red and yellow; mouth shortly broadly four-lobed, lobes obtuse erect. *Stamens* shortly exserted, for not more than twice the length of the perianth-lobes; anthers shortly oblong. *Style* rather longer than the stamens, stigma minute.—*J. D. H.*

Fig. 1, Section of leaf; 2, flower; 3 and 4, anthers; 5, pistil; 6, transverse section of ovary:—*all enlarged.*

M. S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp

L. Reeve & Co. London

TAB. 6717.

GLYPHOSPERMA PALMERI.

Native of Northern Mexico.

Nat. Ord. LILIACEÆ.—Tribe ASPHODELEÆ.

Genus GLYPHOSPERMA, *S. Watson in Proc. Amer. Acad.* vol. xviii. p. 164.

GLYPHOSPERMA *Palmeri*; glaberrima, caule gracili parce ramoso, foliis elongatis gramineis fistulosis basi longe membranaceo-vaginatis, racemis laxifloris, pedicellis erecto-patentibus, perianthii segmentis oblongis obtusis albis nervo medio dilatato fusco-viridi, filamentis exterioribus brevibus basi in appendicem membranaceam late oblongam fimbriatam dilatatis, interioribus longioribus appendice angustiore, stigmate magno 3-globoso, capsula subglobosa, seminibus 3-gonis faciebus subrugoso-undulatis.

G. Palmeri, *S. Wats. l. c.*

A very singular hardy plant, the type of a new genus, described after the publication of the last volume of the "Genera Plantarum," in which it would otherwise have been included. Its position in the great natural order of *Liliaceæ* is in the subtribe *Anthericeæ* of the tribe *Asphodeleæ*, and it will stand next to *Anthericum* itself, to which indeed it seems to be very closely allied, differing chiefly in the structure of the filament.

Glyphosperma was discovered by Dr. E. Palmer, one of the most enterprising and successful botanical explorers of the North American continent, in sandy valleys at the town of Saltillo, in Cohuila (a province of Mexico), during a journey in South-Western Texas and Northern Mexico. Seeds received from the Botanical Gardens of Cambridge University, Massachusetts, were raised at Kew in 1881, and flowered in February, 1882. It is not an attractive plant, but as a near relative of the European *Anthericum* it has a special botanical interest. In the description of the flowers given in the American journal, these are said to be of a light salmon colour; as cultivated at Kew they are nearly white.

DESCR. *Root* of fascicled fleshy fibres. *Leaves* twelve to

eighteen inches long, by one-sixth to a quarter of an inch broad, slender, soft and grass-like, concave in front, convex on the back, hollow, bright green, base rather broader with sheathing membranous margins. *Stem* eighteen to twenty-four inches high, slender, erect, sparingly paniculately branched, naked below; branches long, slender, suberect, with membranous ovate bracts a quarter to half an inch long at the forks and bases of the pedicels. *Racemes* slender; flowers very remote; pedicels rather longer than the bracts, slender. *Perianth* three-quarters of an inch in diameter, cleft to the base into oblong obtuse white spreading segments with a broad central greenish-brown nerve, the outer segments rather the narrower. *Stamens* much shorter than the perianth; outer the shortest, suddenly dilated at the base into a broadly oblong fimbriated membranous appendage; inner (both appendage and filament) longer; anthers short, oblong, attachment dorsal, versatile, slits introrse. *Ovary* globose, sessile, three-celled; style slender, equalling the stamens, deciduous; stigma large, capitate, three-lobed; ovules two in each cell, pendulous. *Capsule* nearly globose, three-angled, membranous, loculicidal, cells one- to two-seeded. *Seeds* triquetrous, dark, sides and back subrugosely pitted.—*J. D. H.*

Fig. 1, Stamens and ovary; 2, longer and, 3 and 4, shorter stamens; 5, ovary; 6, transverse section of ditto; 7, capsule; 8 and 9, seeds:—*all enlarged.*

A.B del. J.N Fitch.lith

Vincent Brooks Day & Son Imp

L. Reeve & Co. London

Tab. 6718.

ASTER DIPLOSTEPHIOIDES.

Native of the Himalaya.

Nat. Ord. Compositæ.—Tribe Asteroideæ.

Genus Aster, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 271.)

Aster (Alpigenia) *diplostephioides*; glanduloso-pubescens v. -tomentosa, v. -villosa, rhizomate robusto, caule simplici erecto robusto folioso 1-cephalo, foliis radicalibus oblongo- v. obovato-oblongis v. oblanceolatis acutis in petiolum angustatis caulinis sessilibus linearibus oblongo-linearibus obovato-oblongisve, capitulo 2–3-poll. diam., involucri bracteis lanceolatis exterioribus interdum foliaceis, ligulis purpureis elongatis 2-seriatis, acheniis oblongis compressis erostatis sericeis, pappi setis sordidis extimis brevibus rigidis.

A. diplostephioides, *Benth. in Gen. Pl.* vol. ii. p. 272; *Clarke Comp. Ind.* p. 45; *Hook. f. Fl. Brit. Ind.* vol. ii. p. 251.

Heterochæta diplostephioides, *DC. Prodr.* vol. v. p. 282.

Diplopappus diplostephioides, *Herb. Ind. Or. Hook. f.* vol. v. p. 7, *in part.*

This is the handsomest and one of the commonest of the Alpine *Compositæ* of the Himalaya, abounding in moist situations at various points along the southern face of the range from Kashmir to Sikkim, at elevations of 8000 to 11,000 feet in the north-west, but ascending to 16,000 feet in Sikkim. Like its congeners, it varies a good deal in hairyness, breadth and length of its leaves, and size of head, but it is otherwise a remarkably constant species. Its nearest ally is the *A. Heterochæta*, Benth., which is the Himalayan representative of the European and North Asian *A. alpinus*. Many of the heads contain ray-flowers with imperfect stamens, and some with a second ligule smaller than and opposite to the normal one (see fig. 3), the corolla thus becoming bilabiate.

The specimens here figured were raised from seed gathered in Sikkim by H. Elwes, Esq., and presented by him to the Royal Gardens. They flowered profusely in May and June, quite equalling the finest specimens from their native country. Dr. Aitchison, who sends dried

specimens from Kashmir, states in a note that the roots are extensively used in that country in washing clothes.

Descr. Whole plant softly glandular-pubescent or tomentose or even villous. *Rootstock* stout, short and erect, or elongate prostrate and covered with the fibrous remains of old leaves. *Stem* solitary, simple, stout, six to eighteen inches high, leafy. *Radical leaves* two to four inches long, very variable in breadth, from obovate to oblanceolate, acute, quite entire, narrowed into a long or short petiole; cauline two to three inches long, sessile and semiamplexicaul, linear-oblong, acute. *Head* solitary, inclined, two to three inches in diameter. *Involucre* broadly hemispherical; bracts lanceolate, herbaceous, outer subfoliaceous, all appressed. *Receptacle* convex. *Ray-flowers* very numerous, in about two series, tube very short; ligule slender, one inch long, pale bright-purple, tip obscurely toothed. *Disk-flowers* small, with purple heads before expanding. *Achenes* one-eighth of an inch long, oblong, flattened, not ribbed or winged, obtuse, silky; pappus-hairs short, dirty white, rigid, scabrid, outer very short rigid.—*J. D. H.*

Fig. 1, Vertical section of involucre and receptacle; 2, ray-flower; 3, another with imperfect stamens and a second ligule; 4, style-arms of ditto; 5, disk-flower; 6, stamens of ditto; 7, style-arms of ditto; 8, achene and pappus; 9, hair of pappus: —*all enlarged.*

A.B. del, J.N.Fitch lith.

Vincent Brooks Day & Son Imp

L. Reeve & Cº London

Tab. 6719.

JASMINUM floridum.

Native of Japan and China.

Nat. Ord. Oleaceæ.—Tribe Jasmineæ.

Genus Jasminum, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 674.)

Jasminum *floridum;* fruticosum, suberectum, glaberrimum, ramulis angulatis, foliis 3-foliolatis pinnatisve foliolis acuminatis v. apiculatis coriaceis enerviis marginibus obscure scaberulis costa valida, foliolo terminali ovato paulo majore, lateralibus ellipticis v. rarius obovatis sessilibus v. subpetiolulatis, cymis suberectis paucifloris, floribus pedicellatis, calycis glaberrimi lobis tubo 5-costato æquilongis setaceis, corollæ aureæ tubo calyce 4-plo longiore, limbi lobis 5 ovatis subacutis.

J. floridum, *Bunge Enum. Pl. Chin.* p. 42; *DC. Prodr.* vol. viii. p. 313; *Miquel Prolus. Fl. Jap.* pp. 151, 559; *Franch. et Sav. Enum. Pl. Jap.* vol. i. p. 314.

J. subulatum, *Lindl. in Bot. Reg.* 1842, *Append.* n. 58; *DC. l. c.* p. 312.

This yellow-flowered Jasmine belongs to a group of Asiatic forms of which *G. humile*, Linn., is the type, the latter a plant to which many supposed Indian species have been referred by Clarke in the "Flora of British India" (vol. iii. p. 602). It differs from that plant (see Plate 1731) in the rarely pinnate leaves, smaller flowers, and slender calyx-teeth. It was discovered by Bunge during his journey to China, and published by him in 1831; but his description seems to have been overlooked by Lindley, who gave a curt diagnosis of it in the Appendix to the Botanical Register in 1842 under the name of *J. subulatum.* The plant was introduced from China by the Hon. W. Fox Strangways, afterwards Earl of Ilchester, an ardent horticulturist, whose garden at Abbotsbury in Dorsetshire was famous for its collection of rare and interesting plants. Besides authentic specimens collected by Bunge himself, there are other North China ones in the Kew Herbarium from Fortune and Bretschneider, and Japanese ones from the Herbarium of Leyden.

J. subulatum grows freely on a south wall at Kew, without protection, and flowers in July.

October 1st, 1883.

Descr. A glabrous shrub, erect, or with flexuous branches and hence probably also scandent, wood brittle; branches green, angular. *Leaves* alternate, pinnately three-foliolate, rarely pinnate with two pairs of leaflets besides the terminal; leaflets one to one and a half inch long, coriaceous, nerveless, except for the stout midrib, margins smooth or minutely scabrid; lateral leaflets elliptic or rarely obovate or ovate, acute or apiculate; terminal larger, more ovate and acuminate; petiole stout, one-half to three-quarters of an inch long. *Cymes* terminal, suberect, simple or irregularly panicled; pedicels slender, variable in length, one-half to one inch long. *Calyx* a quarter of an inch long, turbinate, five-angled; lobes subulate, as long as the tube. *Corolla* golden yellow, tube four times as long as the calyx; limb one-half to three-quarters of an inch in diameter; segments spreading, ovate, acute. *Stamens* included, filaments very short; anthers lanceolate, acuminate. *Stigma* notched.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, stamens; 3, stigma; 4, tranverse section of ovary:—*all enlarged.*

H.T.D. del J.N.Fitch lith

Vincent Brooks Day & Son Imp

Reeve & Co London

Tab. 6720.

SARMIENTA repens.

Native of Chili.

Nat. Ord. Gesneraceæ.—Tribe Cyrtandreæ.

Genus Sarmienta, *Ruiz et Pav.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1012.)

Sarmienta *repens;* fruticulus gracilis, prostratus v. scandens, glaberrimus, caule tenui repente, foliis parvulis oppositis carnosis brevissime petiolatis ovatis ellipticis rotundatisve obtusis integerrimis v. paucidentatis, floribus axillaribus solitariis gracile pedunculatis coccineis.

S. repens, *Ruiz et Pav. Prodr.* 4; *Fl. Per. et Chil.* vol. i. p. 8, t. 7; *Lamk. Encycl.* 904; *Mart. Nov. Gen.* vol. iii. p. 66, t. 219, f. 2; *Gay Fl. Chil.* vol. iv. p. 350; *Hanst. in Linnæa*, vol. xxxiv. p. 480; *Fl. des Serres*, t. 1646; *Flor. Mag.* vol. ii. t. 112.

Urceolaria, *Fruillé*, vol. iii., *Hist. Pl. Med.* p. 69, t. 43.

U. chilensis, *Ræm. et Sch. Syst. Veg.* vol. i. p. 77.

The Flora of the western parts of Chili contains not a few subscandent or scandent forest-loving plants with scarlet flowers, as *Lapageria rosea* (Plate 4447), *Philesia buxifolia* (Plate 4738), *Berberidopsis corallina* (Plate 5343), and *Mitraria coccinea* (Plate 4462); a fact that may one day no doubt be correlated with some other which will account for it;—possibly the presence or abundance of certain forestral insects whose operations may be necessary for the fertilization of the plants, and which are attracted by the brilliancy of the colouring of these flowers. Again, all these have pendulous flowers, a peculiarity which they share with the species of another scarlet-flowered genus of the same region, the Fuchsias, and with *Tricuspidaria* (*Crinodendron*), a beautiful shrub belonging to *Tiliaceæ*, which, though introduced into Europe, has not yet been figured from cultivated specimens.

Sarmienta is a monotypic genus, and very closely allied to another also monotypic and Chilian one, the above-mentioned *Mitraria coccinea*, which has larger flowers of a somewhat similar form; it inhabits the southern provinces

of the Mainland from Concepcion southward, and the Island of Chiloe, which is its southern limit. It was introduced into cultivation by Messrs. Veitch, and thrives in a cool damp conservatory amongst moss and stones or stumps of trees, or with a little care it may be trained to form a beautiful basket plant, flowering in the summer months.

DESCR. Stem very slender, flexuous, two to four feet long, sparingly branched, ascending mossy tree-trunks or straggling over the ground; branches as thick as twine, brittle, rooting at the nodes, red brown, very sparsely hairy. *Leaves* one-half to three-fourths of an inch long, opposite, subsessile, bifarious, ovate, broadly elliptic or orbicular, obtuse, rather fleshy, quite entire or with a few shallow crenatures, margins recurved, nerves obscure, upper surface dark green glabrous opaque, lower pale punctulate. *Peduncles* solitary or in opposite axils, filiform, one-half to one and a half inch long, glabrous, one-flowered. *Flowers* pendulous, scarlet. *Sepals* five, one-eighth of an inch long, narrow, linear, or lanceolate, obtuse, bristly with white hairs. *Corolla* three-quarters to one inch long; tube elongate, ventricose, constricted at the throat and suddenly at the base into a very narrow cylinder, obscurely pubescent; limb oblique, lobes much shorter than the tube, rounded, spreading. *Stamens* inserted near the base of the corolla, filaments slender, free, two posterior with perfect anthers far exserted; two anterior filiform with clavate tips or minute anthers; fifth a very short staminode; anthers shortly oblong, free; cells parallel, distinct. *Disk* obsolete. *Ovary* superior, attached by a broad base; style capillary, exserted, stigma small, simple.—*J. D. H.*

Fig. 1, Peduncle, calyx, and ovary; 2, base of corolla laid open, showing the shorter stamens and staminode; 3, front, and 4, back view of anthers of longer stamens:—*all enlarged.*

H.T.D del. et lith.

Vincent Brooks Day & Son imp.

L.Reeve & Co. London.

Tab. 6721.

RHAMNUS LIBANOTICA.

Native of Asia Minor and Syria.

Nat. Ord. Rhamnaceæ.—Tribe Rhamneæ.

Genus Rhamnus, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 377.)

Rhamnus (Eurhamnus) *libanotica*; frutex robustus, ramis crassis erectis v. basi procumbentibus, foliis breviter petiolatis a basi rotundata subcordatave oblongis ovatisve v. fere rotundatis, obtuse acuminatis acutatisve creberrime denticulatis demum læte brunneis, junioribus utrinque flavido-tomentellis, venis penniformibus utrinque 12–15 validis arcuatis, floribus dioicis parvulis in cymas breves puberulas paucifloras dispositis, drupa hirtula calycis limbo (lobis caducis) basi cincta, seminibus obtuse trigonis rima hiante per totam longitudinem percursa.

R. libanotica, *Boiss. Diagn. Ser.* 1, vol. ii. p. 119; *Fl. Orient.* vol. ii. p. 19.

R. imeretiæ, *Hort.*, and R. castaneifolia, *Hort.*

This is the Oriental representative of the South European Alpine Buckthorn, *Rhamnus alpinus*, a native of the Alps from Spain to Gallicia, and of Morocco and Algeria, and I am disposed to think a mere variety of that plant; indeed Boissier, its author, mentions its close alliance to the western Alpine Buckthorn, giving as its diagnostic characters its being more pubescent and having the groove of the seed (which I have not seen) carried almost up to the top of that organ, instead of commencing below it. A better character might be found in the beautifully bronze colour of the old leaves, which characterizes the Kew cultivated specimens, but which is probably not constant; for I do not remember having remarked it on the wild plant when I gathered it on the Lebanon in 1860. Other hardly distinguishable forms are *R. Sibthorpiana*, DC., and *R. fallax*, Boiss., both of the Greek mountains, and *R. cornifolia*, of Kurdistan and Persia.

R. libanotica is a native of the Lebanon and Antilebanon, in the former of which it attains an elevation of 9000 feet; it also inhabits the mountains of Pamphilia and the Cilician

Taurus. It is perfectly hardy at Kew, and flowers in the month of June. The garden synonyms of *R. imeretiæ* and *R. castaneifolia* I have taken on the authority of Lavallée's valuable "Hortus Segrezianus," confirmed as to the former by the fact that the Kew specimens (here figured) came from Messrs. Booth of Hamburg in 1876 as *R. imeretiæ*. It is a female plant, now in bud, nearly six feet high, and has in late autumn a very handsome appearance.

Descr. A ramous bush, four to six feet high; branches erect or spreading, or the lower procumbent, stout, leafy, young shoots puberulous. *Leaves* two to nine inches long, shortly stoutly petioled, oblong ovate or almost orbicular, bright green above, bronzed beneath, acute or suddenly contracted at the tip into a short blunt point, coriaceous; base rounded or subcordate; margin finely denticulate; nerves twelve to fifteen pair, stout, slightly curved; young leaves softly pubescent on both surfaces; petiole one-fourth to one-third of an inch long. *Flowers* in small axillary cymes, dicœcious; branches of cymes and calyces puberulous. Male flower broadly funnel-shaped. *Calyx-lobes* ovate, acute. *Petals* bifid, irregularly toothed, rather shorter than the stamens. Female flower more campanulate than the male, apetalous. *Calyx-lobes* as in the male. *Staminodes* subulate. *Ovary* globose; stigmas exserted.—*J. D. H.*

Fig. 1, Male flower (from Herbarium specimens); 2, petal and stamen of ditto; 3, female flower; 4, the same laid open:—*all enlarged.*

6722.

H.T.D. del J.N.Fitch lith.

Vincent Brooks Day & Son Imp

L.Reeve & Cº London

Tab. 6722.

TRITONIA Pottsii.

Native of South Africa.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Tritonia, *Ker;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 708.)

Tritonia (Montbretia) *Pottsii;* rhizomate longe repente bulbos globosos segregatos gerente, foliis 5–6 distichis linearibus viridibus, inferioribus basalibus pedalibus vel sesquipedalibus, reliquis caulinis reductis segregatis, caule 3–4-pedali, paniculæ laxæ ramis spicatis ascendentibus multifloris, spathæ valvis parvis membranaceis, perianthii crocei infundibularis segmentis oblongis tubo duplo brevioribus, staminibus inclusis, styli ramis brevibus cuneatis, fructu ovoideo obtuse angulato.

T. Pottsii, *Benth. in Gen. Pl.* vol. iii. p. 708.

Montbretia Pottsii, *Baker in Gard. Chron.* 1877, vol. viii. p. 424; *Belg. Hort.* 1878, p. 90; *Garden*, 1880, p. 84, *with coloured plate; Gard. Chron.* 1880, vol. ii. p. 525.

Gladiolus Pottsii, *Macnab in Hort. Edinen.*

This is one of the most interesting and valuable new bulbous plants that have been introduced of late years. It was brought into the Edinburgh Botanic Garden several years ago by Mr. G. H. Potts, of Lasswade, after whom it was named by the late Mr. Macnab, who distributed it freely. We do not know from what district in South Africa it came, and have never received at Kew any wild specimens. It flowers in August, and as it dies down to the ground in winter, it can easily be given all the protection it needs, and is practically hardy in our English climate. As one plant will produce fifty or a hundred flowers, and it will go on flowering for a month, it is a fine acquisition to our stock of bright-flowered hardy bulbs. Recently it has been hybridized by Monsieur Victor Lemoine, of Nancy, with its near ally *Tritonia* (*Crocosma*) *aurea*, figured Bot. Mag. tab. 4335, and a third fine plant is the result, which has been figured in the Belgique Horticole for 1881, tab. 14, under the name of *Montbretia crocosmæflora*. Our present plate was drawn from a plant that flowered at Kew in the summer of 1881.

November 1st, 1883.

Descr. *Bulbs* globose, connected by a long thread-like rhizome. (A detailed account of their organization will be found in the paper in the *Gardener's Chronicle* above cited.) *Stems* slender, erect, three or four feet long including the inflorescence, which reaches almost half-way down. *Leaves* about four in a distichous rosette at the base of the stem, linear, green, moderately firm in texture, a foot or a foot and a half long. *Peduncle* furnished with two or three leaves, similar to the others, but smaller. *Panicle* a foot or a foot and a half long, composed of three to five ascending branches, bearing twelve to twenty flowers each; spathe of two small membranous valves, the outer lanceolate, the inner oblong, entire or obscurely emarginate at the tip. *Perianth* infundibuliform, bright deep yellow, more or less flushed on the outside with red, about an inch long, the oblong segments half as long as the tube. *Stamens* contiguous, inserted half-way up the perianth-tube, with anther and filament of about equal length. *Style* with three short cuneate branches. *Capsule* ovoid, obtusely angled, many-seeded.—*J. G. Baker.*

Fig. 1, A flower cut open, *life-size*; 2, vertical section of ovary, *enlarged*; 3, capsule, *life-size*.

H.T.D. del, J.N.Fitch lith.

Vincent Brooks Day & Son Imp

L.Reeve & Co. London.

Tab. 6723.

ANGRÆCUM Scottianum.

Native of the Comoro Islands.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Angræcum, *Thouars;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 583.)

Angræcum (Euangræcum) *Scottianum;* caulibus teretibus elongatis radicantibus, foliis elongatis subdistichis recurvis semi-cylindricis subacutis facie sulcatis, pedunculo 1–2-floro, floribus albis, sepalis petalisque consimilibus linearibus acutis, labello magno quadrato latiore quam longo antice retuso medio abrupte mucronato basi utrinque sulco semi-lunari notato dorso basi in calcar 4-poll. flexuosum flavo-brunneum producto, columna brevissima, polliniorum stipite oblongo-quadrato integro marginibus incurvis.

A. Scottianum, *Reichb. f. in Gard. Chron.* 1878, vol. x. part 2, p. 557, *et* 1881, vol. xiv. part 2, p. 136, f. 30; *Fl. Mag. N. S.* t. 421.

A remarkable species, allied to *A. eburneum* in flower, but very different in foliage, which, though resembling that of species of several genera of *Orchideæ*, is quite unlike that of any other *Angræcum*. It is one of the many novelties for which Horticulturists are indebted to Sir John Kirk, who procured it from Johanna, one of the Comoro Islands, in 1878, and sent a sketch of the flower to Kew from a plant which flowered in his garden at Zanzibar. The flowers probably vary a good deal in colour, for Sir John, in his notes, describes the sepals as pale green, and the lip as having two yellow spots at its base.

The species was named after Mr. R. Scott, of Cleveland, Walthamstow, with whom the plant flowered in 1879. Our drawing was made from specimens sent to the Royal Gardens by Sir John Kirk, which flowered at Kew in July, 1880.

Descr. *Stem* one to two feet long, a fourth to a third of an inch in diameter, cylindric, terete, rigid, dark green, clothed with brown sheaths below, scandent by roots at the internodes. *Leaves* three to four inches long, sub-distichous, spreading and recurved, shortly sheathing at

the base, semi-cylindrical, subacute, dark green, under surface rounded, upper shelving from the margin to the deeply grooved mesial line, nerveless. *Sheaths* tubular, terete, appressed, mouth oblique. *Flowers* solitary or few on an axillary peduncle one to four inches long; bracts small, lanceolate, appressed; pedicel and ovary one inch long. *Sepals* spreading, one to one and a quarter inch long by one-fourth of an inch broad, linear, acute, very pale straw-coloured or greenish, margins below the middle recurved. *Petals* rather smaller and narrower, acuminate, contracted at the base, white. *Lip* very large, transversely an oblong square with rounded angles, one and a half inches broad by one long, retuse in front with a short mucro, rather concave, surface even except two small semi-lunar depressions at the very base radiating from the base of the column; spur four to five inches long, pendulous, flexuous, yellow-brown. *Column* very short, white, two-winged anteriorly, wings rounded. *Pollen-masses* two, sessile on the top of an oblong stipes with incurved margins. —*J. D. H.*

Fig. 1, Flower of the *natural size*; 2, column and section of base of spur; 3, column seen from the side; 4 and 5, back and front view of pollen-masses:—*all enlarged.*

H.T.D. del. C.H. Fitch lith

Vincent Brooks Day & Son Imp

Tab. 6724.

ROSA alpina.

Native of the Alps and Pyrenees.

Nat. Ord. Rosaceæ.—Tribe Roseæ.

Genus Rosa, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 625.)

Rosa (Pimpinellifoliæ) *alpina;* fruticosa, erecta, ramis gracilibus inermibus inferne aculeis tenuissimis sparsis instructis, foliis patentibus opacis, stipulis planis cum petiolo et rachi glanduloso-ciliatis, foliolis 5–13 ellipticis ovatis v. oblongis utrinque acutis v. acuminatis duplicato-serratis subtus cæsiis, floribus subsolitariis roseis, pedunculis glanduloso-setosis, sepalis caudato-elongatis conniventibus apicibus quandoque dilatatis serratis, petalis obcordatis concavis, disco obsoleto, stigmatum capitulo vix exserto, fructu obovoideo sæpe elongato rubro lævi v. glanduloso-setoso.

R. alpina, *Linn. Sp. Pl.* ed. 2, vol. i. p. 703; *Jacq. Fl. Aust.* vol. iii. p. 43, t. 279; *DC. Prodr.* vol. ii. p. 611; *Hort. Kew.* ed. 2, vol. iii. p. 265; *Redouté Les Roses*, t. 113; *Lindl. Bot. Reg.* t. 424.

R. alpina, *var.* vestita, *Gren. et Godr. Flor. France*, vol. i. p. 556.

R. inermis, *Mill. Gard. Dict.* ed. 8, n. 6.

R. pyrenaica, *Gouan Ill.* vol. iii. t. 19; *Desegl. in Bull. Soc. Bot. Belg.* vol. xv. p. 288.

This, which is one of the most elegant of the single Roses, though introduced so long ago as 1683, is much less cultivated than it deserves to be. Lindley, who calls it the beautiful ornament of the Alps of Switzerland and the temperate latitudes of Europe, regards it as the type of a small group of species with little affinity to each other, except in the circumstance of being almost universally deprived of prickles. Seringe, in De Candolle's Prodromus, enumerates sixteen varieties of it, differing chiefly in the amount of glandular hairs; and it is that called *pyrenaica*, having the calyx and peduncles hispid, to which the form here figured is referable. It has a multitude of synonyms. Botanically it belongs to a section of the genus which contains the Hedge and Scotch roses (*R. sepium*, *R. spinosissima*, &c.), characterized by the connivent permanent sepals, absence of disk in the flower, numerous leaflets, and usually the absence of bracts.

November 1st, 1883.

The specimen from which the figure is taken was brought by Mr. Thiselton Dyer from the Pyrenees in 1881. It is a very dwarf form, the *R. pyrenaica* of Gouan, with hispid sepals and elongate fruit. It flowers in June and July.

DESCR. An almost unarmed shrub two to eight feet high, suberect, or with a few very slender straight prickles low down on the branches; branches suberect, slender, dark green, glaucous. *Leaves* crowded, two to five inches long; stipules large, flat, widened upwards, glabrous or gland-ciliate, and slightly bristly; petiole and rachis glandular; leaflets five to thirteen, opaque, elliptic or ovate, acuminate at both ends, simply or doubly serrate, naked above, glaucous beneath. *Flowers* two to two and a half inches in diameter, solitary, suberect; peduncle naked, bristly or glandular-hairy; calyx glabrous or glandular-bristly, tube obovoid, very variable in length; sepals very long, narrowly lanceolate, points dilated and serrate or simple, erect in fruit. *Petals* broadly obcordate, concave, pink or rose-red. *Disk* none. Head of *stigmas* convex, slightly exserted. *Fruit* one to one and a half inches long, obovoid, pyriform or elongate, longer or shorter than the persistent sepals, bright red.—*J. D. H.*

H.T.D. del. J.N.Fitch lith.

Vincent Brooks Day & Son Imp

TAB. 6725.

FRITILLARIA PALLIDIFLORA.

Native of Siberia.

Nat. Ord. LILIACEÆ.—Tribe TULIPEÆ.

Genus FRITILLARIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 817.)

FRITILLARIA (Monocodon) *pallidiflora;* bulbo globoso subsquamoso, caule valido, foliis multis ecirrhosis, infimis oppositis oblongis, reliquis alternis, superioribus lanceolatis, floribus paucis pedunculatis cernuis, perianthio late campanulato pallide luteo segmentis late imbricatis oblongis vel obovato-oblongis ad faciem punctis pluribus minutis rubro-purpureis decoratis et supra basin foveolâ globosa viridula præditis, genitalibus inclusis, antheris filamentis brevioribus, stylo conspicue tricuspidato, fructu acute angulato.

F. pallidiflora, *Schrenk Enum. Pl. Nov.* part 1, p. 5; *Kunth Enum.* vol. iv. p. 251; *Ledeb. Fl. Ross.* vol. iv. p. 148; *Regel Gartenfl.* vol. vi. (1857), p. 329, t. 209; *Fl. Turkest.* vol. i. p. 146; *Rev. Hort.* 1880, p. 215.

This is a very distinct species of Fritillary. It inhabits the mountains of Southern Siberia, where it reaches an elevation of 8000 or 9000 feet above sea-level, so that it is quite hardy in England. It is allied to *F. Meleagris* and *F. pyrenaica*, but the leaves are more numerous and broader, and the flowers larger. In the wild state they are creamy yellow, with a few minute reddish-purple spots on the face; but, as in many other species, they become greener in our insular climate. Our Plate was drawn from a plant grown in the herbaceous ground at Kew, from bulbs furnished by Dr. Regel. We have also received it from Mr. Elwes and Dr. Masters. It flowers in April.

DESCR. *Bulb* globose, half an inch or an inch in diameter, subsquamose. *Stems* stout, erect, varying in length from six to fifteen inches. *Leaves* varying in number from eight to twenty-five, sessile, not cirrhose at the tip, firm in texture, glaucous-green, two or three inches long, lowest oblong, opposite, the rest alternate, the upper ones lanceolate. *Flowers* one to six, produced from the axils of the upper leaves on cernuous peduncles. *Perianth* broadly

NOVEMBER 1ST, 1883.

campanulate, about an inch and a half long, truncate at the base, cream-white, tinged with green on the outside, dotted over with minute reddish-purple spots inside; segments oblong or obovate-oblong, each furnished with a small roundish green glutinous foveole at the bend above the claw. *Stamens* much shorter than the perianth; filaments linear, glabrous; anthers linear-oblong. *Ovary* clavate, half an inch long; style deeply tricuspidate. *Capsule* obovoid, with six winged angles.—*J. G. Baker.*

Fig. 1, Segment of perianth; 2, a pair of stamens, *both life-size.*

M.S. del J.N.Fitch lith

Vincent Brooks Day & Son Imp.

Tab. 6726.

EREMURUS ROBUSTUS.

Native of Central Asia.

Nat. Ord. Liliaceæ.—Tribe Asphodeleæ.

Genus Eremurus, *M. B.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 787.)

Eremurus (Henningia) *robustus;* fibris radicalibus crassis cylindricis, foliis basalibus pluribus rosulatis ensiformibus bipedalibus glabris flaccidis, scapo valido tereti 2–3-pedali, racemo densiusculo 2–3-pedali, pedicellis solitariis erecto-patentibus apice articulatis, bracteis parvis linearibus membranaceis, perianthii campanulati rubelli segmentis oblongis nervo singulo perspicuo rubro-brunneo vittatis, filamentis filiformibus perianthio æquilongis, antheris lineari-oblongis cito contortis, ovario globoso, stylo elongato decurvato.

E. robustus, *Regel in Gartenflora*, vol. xxii. (1873), p. 257, t. 769; *Fl. Turkest.* vol. i. p. 125; *Baker in Journ. Linn. Soc.* vol. xv. p. 284.

Henningia robusta, *Regel Enum. Pl. Semenow*, p. 134, no. 1092.

The genus *Eremurus*, in which *Henningia* and *Ammolirion* are now included by common consent, is closely allied to *Asphodelus*. Upwards of twenty species are now known, which are concentrated in the dry regions of Central Asia, two of them just extending within the European boundary, and one to the Himalayas, but none, so far as at present known, to Japan or China. The present plant is unmistakably the finest of the genus; its racemes reach a height of five or six feet, and its flowers are a beautiful pinkish red. It was first discovered by the well-known Russian traveller, Semenow, growing at a height of 2000 to 3000 feet above sea-level in the Alatau mountains. Madame Olga Fedjenko, one of whose original specimens we possess at Kew, next found it at a height of 10,000 feet in Turkestan, and soon after it was collected at a much lower level in the same region by Korolkow. It was first flowered in Europe in the summer of 1871 at the Moscow Botanic Garden. Max Leichtlin succeeded with it at Carlsruhe in 1873. Some time ago Mr. W. E. Gumbleton brought to us at Kew a beautiful drawing of a plant that had flowered with him in

County Cork. Our plate was drawn from a plant grown by Professor M. Foster, at Shelford, near Cambridge, last summer.

DESCR. *Radical fibres* numerous, cylindrical, fleshy. *Leaves* in a dense basal rosette, ensiform, glabrous, furnished with a narrow cartilaginous border, about two feet in length, one to two inches broad at the middle, pale green, weak in texture. *Scape* terete, erect, hollow, two or three feet long, half or three-quarters of an inch in diameter. *Raceme* erect, moderately dense, two or three feet long, four or five inches in diameter when expanded; pedicels solitary, erecto-patent, an inch or an inch and a half long, articulated at the apex; bracts linear, membranous, much shorter than the pedicels. *Perianth* campanulate, rotate when fully expanded; segments oblong, bright pink, three-quarters of an inch long, with a distinct one-nerved reddish-brown keel. *Filaments* filiform, just as long as the perianth; anthers linear-oblong, red before they open; pollen bright yellow. *Ovary* sessile, globose; style as long as the filaments, slender, deflexed. *Capsule* globose, smooth, the size of a cherry.—*J. G. Baker.*

Fig. 1, Stamens and pistil; 2, front view of an anther; 3, back view of an anther; 4, horizontal section of ovary:—*all more or less enlarged;* 5, unripe capsule, *life size.*

A B. del. J N Fitch lith

Vincent Brooks Day & Son imp

L. Reeve & Co.ns London

Tab. 6727.

GENTIANA Moorcroftiana.

Native of the Western Himalaya.

Nat. Ord. Gentianeæ.—Tribe Swertieæ.

Genus Gentiana, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 815.)

Gentiana (Amarella) *Moorcroftiana;* annua, caule erecto gracili a basi ramoso, ramis suberectis v. adscendentibus flexuosis laxe foliosis, foliis sessilibus oblongis lineari-oblongis ellipticisve obtusis v. subacutis enerviis, floribus solitariis v. in cymas laxifloras dispositis gracile pedicellatis, calycis tubo subcampanulato lobis linearibus elongatis, corolla infundibulari cœrulea, fauce nuda, lobis ovatis subacutis, capsula lanceolata pedicellata inclusa, seminibus minutis subglobosis, testa lævi.

G. Moorcroftiana, *Wall. Cat.* 4390; *Griseb. Gentian.* 243, *et in DC. Prodr.* vol. ix. p. 96, *excl. syn.; Clarke in Journ. Linn. Soc.* vol. xiv. p. 433, *et in Fl. Brit. Ind.* vol. iv. p. 108.

The Gentians of the Himalaya, of which there are no fewer than thirty-seven described species, many of them of extraordinary beauty, are, with scarcely an exception, strangers to European gardens. The only one hitherto figured in this Magazine is *G. ornata* (Plate 6514); for *G. decumbens* (Plates 705 and 723) and *G. detonsa* (Plate 639), though also Himalayan, were both of them figured from specimens procured from other countries. A few hitherto unfigured are however in cultivation, thanks to the exertions of Mr. Elwes; and no doubt before many years are over a goodly number of species will adorn our rockworks and borders. My impression, however, is that beautiful as many of the Himalayan species are, none compare with those of our own alps in brilliancy of blue. This may be due to the fact of these all flowering during the rains, which deluge the Indian mountains throughout the summer months.

G. Moorcroftiana is a near ally of the British *G. campestris*, and like it is an annual. It is confined to the extreme west of the Himalaya, to Kashmir, Western Tibet, and the immediately neighbouring provinces, where it is common

at elevations of 8000 to 12,000 feet. The name it bears is that of Mr. William Moorcroft, a veterinary surgeon in the service of the Honourable East India Company, one of the earliest and boldest of Asiatic travellers, who visited Kashmir, Tibet, and Bokhara in the years 1819 to 1825, with the view of obtaining Turkestan horses wherewith to improve the Company's stud. Mr. Moorcroft was the first collector of Kashmir plants; and he contributed these to Dr. Wallich, who named and distributed them as part of his famous East Indian Herbarium. His end was untimely, falling a victim to fever in Bokhara, after enduring hardships and misfortunes of every description.

The specimen here figured was raised from seeds sent by Robt. Ellis, Esq., from Chamba, a province close to Kashmir.

Descr. A slender glabrous annual, four to ten inches high. *Stem* simple or branched from the root, the branches often again divided, flexuous, leafy. *Leaves* one to one and a half inch long, sessile, linear-oblong or elliptic, obtuse or subacute, nerveless. *Flowers* solitary at the ends of the branches, or in leafy cymes; pedicels one-sixth to half an inch, slender. *Calyx* campanulate, tube obtusely angled, a fourth of an inch long; lobes linear, obtuse, longer than the tube, equalling the corolla-tube or shorter. *Corolla* three-quarters to one and a quarter inch long, funnel-shaped, pale blue; throat naked and without folds; lobes one-third of an inch long, ovate, subacute. *Capsule* linear, pedicelled, included. *Seeds* minute, subglobose, testa smooth.—*J. D. H.*

Fig. 1, Flower cut vertically; 2, front and back view of stamens; 3, anther; 4, pistil; 5, transverse section of capsule:—*all enlarged.*

3

4

2

M. E. del. J.N.Fitch Lith.

Vincent Brooks Day & Son Imp

TAB. 6728.

AERIDES EMERICII.

Native of the Andaman Islands.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus AERIDES, *Lour.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 576.)

AERIDES *Emericii*; foliis elongatis loriformibus latiusculis crasse coriaceis apice bifidis lobis obtusis, racemo pendulo multifloro, rachi viscosa, floribus roseis longe pedicellatis, perianthio subgloboso segmentis incurvis obtusissimis, sepalo dorsali late obovato rotundato, lateralibus majoribus late ovato-oblongis, petalis obovato-oblongis sepalo dorsali paullo majoribus, labello in calcar infundibuliforme crassum incurvum abeunte lobis lateralibus rotundatis erectis terminali parvulo linguæforme inter lobos laterales recondito incurvo.

A. Emericii, *Reichb. f. in Gard. Chron. N. S.* vol. xviii. (1882, ii.), p. 586.

As justly remarked by Dr. Reichenbach, *Aerides Emericii* is very closely allied to *A. virens*, Lindl. (Bot. Reg. vol. xxxvii. tab. 41), a native of Java, which differs chiefly in its much larger flowers, with toothed lobes to the lip, and in the colouring, which consists of dark purple blotches on the tips of the white sepals and petals, and of pale red-purple spots on the lip. The leaves are very similar both in size and in the lobed tip, and they are alike too in colour.

A. Emericii was found in the Andaman Islands, on the east side of the Bay of Bengal, by Lieut.-Col. Emeric Berkeley (son of the veteran botanist and horticulturist, the Rev. M. J. Berkeley), by whom the specimen here figured was flowered in May last, and kindly communicated for figuring. It presents the remarkable character of a glutinous secretion along the rachis of the raceme, the object of which may possibly be to prevent ants or other phytophagous insects from attacking the flowers.

DESCR. *Stem* stout, short, six to eight inches long, leafy; aerial roots very stout, one-fourth of an inch in diameter and under. *Leaves* distichous, nearly a foot long and under, by one to one and a half inch broad, exactly linear, nearly flat, coriaceous, nerveless, keeled, pale green, tip

deeply bifid, lobes obtuse, sinus acute. *Raceme* axillary, five to six inches long, drooping, shortly peduncled; peduncle and rachis green, the latter viscid. *Flowers* very numerous, half an inch in diameter, ascending from the pendulous rachis, pale pink with darker tips to the perianth-segments, and purple mid-lobe of the lip; bracts minute; pedicels and ovary together one inch long, slender, slightly curved, pink. *Perianth-segments* short, incurved, all with rounded tips. *Upper sepal* obovate-oblong, lateral much broader, more ovate. *Petals* obovate-oblong, rather larger than the dorsal sepal. *Lip* adnate to the produced base of the column, funnel-shaped, thus passing into the stout obtuse incurved spur; lateral lobes large, erect, rounded, quite entire; median one very small, tongue-shaped, incurved and almost concealed between the lateral lobes.—*J. D. H.*

Fig. 1, Side view of column and lip; 2, front view of column; 3 and 4, pollinia with stalk and gland:—*all enlarged.*

M.S. del. et lith.

Vincent Brooks Day & Son Imp

TAB. 6729.

PAPAVER HOOKERI.

Native of Indian Gardens.

Nat. Ord. PAPAVERACEÆ.—Tribe EUPAPAVERACEÆ.

Genus PAPAVER, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 51.)

PAPAVER *Hookeri*; elata, robusta, ramosa, patentim hispida, foliis lanceolatis ovatisve pinnatifidim lobatis lobis adscendentibus acutis, floribus amplis coccineis, petalis basi albis v. nigris, filamentis filiformibus, capsula subglobosa brevissime stipitata glaberrima, stigmatis planiusculi radiis 12–20 crenis marginalibus rotundatis incumbentibus.

P. Hookeri, *Baker in Hort. Kew.*

The plant here figured has puzzled me very much. I found it to be common in gardens in India, both native and European, but I know of no native locality for it. Supposing it to have been some well-known garden species, and introduced from Europe or elsewhere, no notice was taken of it in the "Flora Indica," or in the "Flora of British India." Specimens are in the Kew Herbarium, collected in the Saharumpore Gardens by Thomson, in those of Scinde by Stocks, and by myself in those of Bengal. Its nearest ally is obviously *P. Rhœas*, from which it differs in its great size, for it forms a bushy herb four feet high and upwards, and in the great number of stigmatic rays, which are twelve to twenty, that is nearly double those of *P. Rhœas*; the flowers, capsule, and seeds also are much larger, and the stigma broader in proportion. The flowers attain three and a half inches in diameter, and the capsule three-quarters of an inch. The petals vary from pale rose to bright crimson, with a white or black spot at the base.

Whether to be regarded as a species, or as a large cultivated form of *P. Rhœas*, this is a most valuable addition to our gardens, being perfectly hardy, and single plants flowering continuously in Autumn for several weeks. It was raised from seeds sent by Mr. J. Beck, of Kashmir (formerly of Kew), and which were collected by Mr.

Dalgleish during a journey from Kashmir to Yarkand, in Central Asia. The collection consisted largely of seeds of cultivated plants.

Descr. A branching annual herb, three to four feet high, covered with hispid spreading hairs. *Stem* as thick as the little finger at the base; branches erect and ascending, flowering copiously. *Leaves* three to five inches long, sessile, ovate or lanceolate, irregularly pinnatifidly lobed, the lobes erect, coarsely toothed. *Flowers* long-peduncled, two to three and a half inches in diameter; buds before expansion one inch long. *Petals* broadly wedge-shaped, one pair smaller than the other, crenulate, from pale rose to bright crimson, with a diffused white or blue-black blotch at the base. *Filaments* filiform, about equalling the pistil. *Capsule* one-half to three-quarters of an inch in diameter, subglobose, very shortly stipitate, quite glabrous; stigma very broad, with twelve to twenty rays and rounded crenatures, the latter of which overlap.—*J. D. H.*

Fig. 1, Capsule *of the natural size.*

M.S. del, J.N. Fitch, lith.

Vincent Brooks Day & Son Imp

L. Reeve & Co. London

TAB. 6730.

MEDINILLA CURTISII.

Native of Western Sumatra.

Nat. Ord. MELASTOMACEÆ.—Tribe MEDINILLEÆ.

Genus MEDINILLA, *Gaud.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 759.)

MEDINILLA *Curtisii;* glaberrima, caule gracili, ramulis pendulis cylindraceis obscure tuberculatis, foliis sessilibus ovatis ovato-oblongisve acuminatis læte viridibus marginibus costaque rubris, nervis secundariis tenuissimis patentibus, cymis terminalibus trichotomis pyramidatis pendulis pedunculatis, pedunculo ramis patentibus divaricatis pedicellisque corallinis, bracteis parvis, floribus ad apices ramulorum confertis calyce subgloboso albo limbo truncato obscure dentato, petalis 5–6 orbiculatis concavis eburneis, filamentis subulatis, antheris purpurascentibus.

M. Curtisii, *nob. in Hort. Veitch; Gard. Chron. N. S.* vol. xx. p. 621, f. 108.

The species of *Medinilla* are numerous, and few have as yet been introduced into cultivation, though probably all merit a place in our stoves. Upwards of fifty have been described, including the three gorgeous species, *M. speciosa* (Plate 4321), *M. magnifica* (Plate 4533), and *M. amabilis* (Plate 6681), and the more modest *M. javanensis* (Plate 4569) and *M. Sieboldiana* (Plate 4650). From all these the present plant differs in its graceful habit, and ivory-white flowers with purple anthers.

M. Curtisii is a native of the Western Coast of Sumatra, where it was discovered by Mr. Curtis when travelling for Messrs. Veitch, who in March last sent the plant to me for figuring, with the request that it might bear the name of its discoverer.

DESCR. A shrub, branches slender, cylindric, obscurely warted, branchlets pendulous. *Leaves* three to three and a half inches long, sessile, oblong or ovate-oblong, acuminate, base rounded or subcordate, three-nerved, thinly coriaceous, bright green with a scarlet midrib and margins, secondary nerves very slender. *Cymes* pyramidal, peduncled, pendulous; peduncle two to four inches long; bracts minute at the bases of the divaricate branches, the lower

of which are one to two inches long and horizontal, flowering near the tips only; pedicels a quarter of an inch and upwards, minutely bracteolate; peduncle, rachis and pedicels coral-red. *Flowers* white, one-half to two-thirds of an inch in diameter. *Calyx* white, globose, fleshy; limb short, truncate, obscurely five-toothed. *Petals* nearly orbicular, concave, imbricate, ivory-white. *Anthers* purple.—*J. D. H.*

Fig. 1, Calyx; 2 and 3, stamens; 4, vertical section of ovary :—*all enlarged.*

INDEX

To Vol. XXXIX. of the THIRD SERIES, or Vol. CIX. of the whole Work.

6697 Acer insigne.
6728 Aerides Emericii.
6707 Allium Macleanii.
6705 Aloe pratensis.
6693 Angræcum modestum.
6723 Angræcum Scottianum.
6718 Aster diplostephioides.
6667 Babiana ringens.
6670 Billbergia Porteana.
6692 Bomarea patacocensis.
6685 Cadia Ellisiana.
6703 Campanula Jacobæa.
6675 Caraguata musaica.
6696 Cephælis tomentosa.
6669 Cereus cæspitosus.
6695 Clerodendron macrosiphon.
6679 Comparettia macroplectron.
6709 Crinum Hildebrandtii.
6686 Dædalacanthus macrophyllus.
6715 Dendrobium cariniferum, *var.* Wattii.
6706 Dendrobium revolutum.
6665 Doryanthes Palmeri.
6701 Eranthemum borneense.
6726 Eremurus robustus.
6676 Eucharis Sanderii.
6678 Fraxinus Mariesii.
6725 Fritillaria pallidiflora.
6727 Gentiana Moorcroftiana.
6694 Gerrardanthus tomentosus.
6717 Glyphosperma Palmeri.
6699 Gypsophila cerastioides.
6687 Grevillea annulifera.
6698 Grevillea punicea, *Br.*
6684 Hamamelis virginiana.
6682 Hoya linearis.
6719 Jasminum floridum.
6716 Kniphofia Leichtlinii.
6683 Lælia monophylla.
6711 Leucoium hyemale.
6704 Licuala grandis.
6681 Medinilla amabilis.
6730 Medinilla Curtisii.
6672 Microglossa albescens.
6668 Microstylis metallica.
6666 Nemastylis acuta.
6708 Nymphæa odorata, *var.* minor floribus roseis.
6729 Papaver Hookeri.
6674 Pleuropetalum costaricense.
6671 Pogonia Gammieana.
6712 Primula floribunda.
6673 Pseudodracontium Lacourii.
6721 Rhamnus libanotica.
6691 Rodgersia podophylla.
6724 Rosa alpina.
6714 Salvia boliviana.
6720 Sarmienta repens.
6680 Saxifraga cortusifolia.
6688 Saxifraga lingulata, *var.* cochlearis.
6702 Saxifraga marginata.
6713 Senecio concolor.
6690 Spiranthes euphlebia.
6677 Thunbergia Kirkii.
6700 Torenia flava.
6722 Tritonia Pottsii.
6710 Tulipa Kolpakowskyana.
6689 Utricularia bifida.